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To the

President and Fellows

of the Royal College of Physicians

London;

with the deferential Respect,

of the

Author

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ON

CONSUMPTIVE DISORDERS,

&c. &c.

ON THE

SUCCESSFUL TREATMENT
OF
CONSUMPTIVE DISORDERS,
AND
FEMALE COMPLAINTS CONNECTED THEREWITH;
ON
SCROFULOUS DISEASES;
AND
ON THE MANAGEMENT OF DELICATE HEALTH
BY DIET AND REGIMEN;
WITH CASES.

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"Quæque ipse vidi."

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TO

HENRY COWPER, Esq.

OF

TEWIN WATER, HERTS.

WHOSE EVER-READY KINDNESS TO HIS FELLOW-CREATURES
HAS LONG BEEN WIDELY EXPERIENCED,
WHENEVER SUFFERING POVERTY MADE ITS APPEAL;
AND WHOSE ACTIVE BENEVOLENCE
WAS MAINLY INSTRUMENTAL IN RAISING THE INFIRMARY
WHEREIN MANY OF THE
FOLLOWING CASES HAVE BEEN TREATED,
THESE PAGES ARE,
WITH HIS KIND PERMISSION,
RESPECTFULLY AND GRATEFULLY INSCRIBED BY

THE AUTHOR.

PREFACE.

The following *Practical Essays* are presented to the reader, in the hope that they may prove serviceable, and in that spirit of doing one's duty to one's fellow-creatures, which ought to actuate the mind of every medical practitioner who has had opportunities of medical experience; and those with whom benevolence is a duty independent of pecuniary gain, will readily concede that any attempt to ameliorate the condition of suffering humanity, is its own sufficient apology.

The writer deems that the plans of treatment recommended in the following pages will be found generally successful in curing or preventing Consumption and Scrofula. He makes no pretension to originality—for although the statements here to be offered, derived as they are, not from books, but from the bed-side, have been wrought out by his own labor and self-communings, and although the modes of treatment proposed are different from the routine methods hitherto pursued, while they are also more successful—yet from his scanty opportunities of making himself acquainted with the professional literature of the day, he may not be able to deny that whatever apparent novelty there may be, must probably enter into the aggregate of received opinions, as it may (though insensibly to the writer) have sprung out of them. Sufficient for him will it be, if he can lay claim to no other merit than that of rightly combining or applying the thoughts of other persons, to the advancement of that science which has for its objects the preservation of life, and the alleviation of the pains and pangs "which flesh is heir to."

Having passed his third professional decenniad—his τρὶτην δεκαητὶαν—which, according to Numa and Plutarch, should entitle him to teach some of the duties of his profession; and having been for many years engaged in the practice of medicine, he has had considerable opportunities of observing disease. It has not been the least of his advantages that he has had to prescribe for, and to watch the phases of disease in hospitals, where his orders could not be contravened by the blunders of ignorance, nor by the wilfulness of temper; and where his plans could not be thwarted (as so often happens in private practice) by the opposing opinions of other practitioners, nor by the obtrusive officiousness and intermeddling of bustling relatives or friends.

He is glad to perceive that many medical officers of hospitals are now performing their duty to the public and the profession, by publishing occasional reports of their practice, which—like the votive tablets hung up in the temple when medicine was in its earliest infancy—will serve as guiding lights for the future. He is also not unwilling to give some little account of his stewardship; conscious that, so far as his abilities and industry have permitted (little though they may be), he has endeavoured to do his best.

In observing facts, as well as in reasoning on them, he has been desirous of avoiding what the Germans, in their copious and plastic language, describe in the one expressive word, einseitigkeit, or one-sidedness—a mode of viewing matters which is utterly destructive of inferential truth, and diametrically opposed to the only sound method of investigation, that by inductive reasoning; and he is fully conscious of the necessity of bringing into play, during medical investigations, that *δυναμὶς αναλυτὶκη*, which will alone enable the physician to avoid error, and to arrive at truth.

In expounding his views, he has not been able to avoid making some conjectures on the proximate morbid conditions of phthisis—yet the writer's practical suggestions are so independent of the proposed theory, that the treatment recommended may rest solely on the facts adduced; he has, however, often appealed to, and quoted, better authority than his own.

He has long since put himself on his guard against plausible generalizations or theories—he has learned to distrust them—to investigate the pertinence or sufficiency of facts—and to repudiate the pleasing phantasms of the imagination in favour of dry, apparently barren, but substantial matters of fact—being quite aware that "Experience is the crystallization of ten thousand arguments, while our only care in looking at it, rarely as we do so, is to prevent the torch we carry from discolouring it." Still, a fact seems to acquire double confirmation when we know its cause; and the philosophic practitioner will inevitably be led to reason on the causation of symptoms; else his practice, whatever his unreflecting experience might be, would be nearly worthless. In such a man, practice becomes the result of theory; and well may he reply to the empirical theory-deriding practitioner, who is also too conceited in general to apply to books, either contemporary or retrospective, that theory is nothing more than the conclusions of reason from numerous and accurately observed phenomena, and the deduction of the laws which connect causes with effects; and also that he who rejects, unexamined and with derision, the theories of the philosopher who has been guided to his conclusions by the strict laws of induction, is an imbecile in intellect and a child in knowledge.

The hygienic precepts have been succinctly compiled from the numerous writers, British and foreign, who have published on hygienics. The author has only deviated from the general mass, in enlarging on the necessity of watching and profiting by the vibrations of that important balance of vitality, between the great internal organs and the extensive cutaneous capillary system, upon which so much depends; and he has furthermore recommended special attention to the latter system and its various functions—particularly in relation to the use of iodine, as affording remedial means of superior efficacy in preventing those internal congestions which give rise to dangerous coughs and consumptive disorders; and in combating certain inflammations of the surface—of the eye, in particular.

He would willingly have chosen some other term than that of delicate health, to designate the state of body described in the following pages—and to which state he has endeavoured to assign a pathological existence—but none other equally applicable presented itself; for he submits that a person may be in delicate health, and in a state readily to be influenced by the causes of disease, without being a decided invalid.

He has insisted upon a timely resort to practical measures; and he wishes he could flatter himself with a hope that his representations may in some quarters prove effectual. Urgent recommendations on this head from a medical man might seem to originate from interested motives; yet his interest would consist in the very opposite course—for doctors, if early applied to, would have less to do than if they were never consulted until disease had had time to take root; and besides, the objection, at best but a sordid one, is amply overruled by the greater probability of preventing loss of life. In consumptive disorders, nothing is more common than a total neglect of the hacking dry cough which so commonly attends them;

and it is referred to a passing cold, or to any other source than the real dangerous one, until great risk of life is at length incurred. Many a head-ache has been lightly called a sick or bilious head-ache, and exercise, &c. ordered, which depended on diseased heart, and required different means of cure. Another person shall complain of pains in feet and legs, which shall be referred to slight stomach derangement—yet insidious and mortal disease shall be going on in the brain. So again shall similar pains be ascribed to rheumatism—yet shall they depend on gastric inflammation, which, if unchecked, would take away life. Costiveness will often be tampered with, by the most drastic medicines, which ultimately turns out to depend on a mechanical obstruction, requiring very different measures for its removal. In fine, many instances might be enumerated, which are repeatedly occurring to the medical man, all tending to show the danger of neglecting the first and earliest symptoms of disease, however slight they may appear to be.

It may seem to sound like a truism to say that to secure good health, the blood must be duly decarbonized; but the writer does not think this subject has been sufficiently enlarged upon in practice—and when viewed in connexion with the skin, its capillary system and its depuratory functions hardly at all noticed.

With a view to his restricted limits, he has purposely given as few illustrative cases as possible, and he has put the surnames of the patients in initials for certain local reasons; but all those who recovered are still alive, are in good health, and for the most part readily to be referred to. He has endeavoured clearly to define, as far as the pen will allow, the various states of constitution, or periods of disease, which require each its own peculiar mode of treatment; but the practical man need not be told that there are fine shades of difference in temperament and morbid signs, which serve to guide the experienced practitioner, yet which cannot be pourtrayed on paper.

In conclusion, he will allege that his objects have been, to impress upon the minds of those predisposed to consumption, the benefit to be derived from early treatment; and to combat, by *cases successfully treated in his own practice*, the erroneous notion which is so generally prevalent, of the inevitable fatality of all cases of this disease—while he has endeavoured to guide the invalid, by pointing out the most eligible regimen "of diet and of life"—to prevent loss of life in the young female at her most critical periods, when nature requires close watching, and occasionally much assistance, (and here he thinks he has been practically successful)—to treat scrofula at less cost to the constitution than hitherto—finally, to show parents how they may avoid exciting disease in their offspring, and how they may best preserve in them "a face blooming with health, the glad promise of many years."

To the sound and legitimate critic, who enters rather into the spirit than the letter of his author, the writer need not address any remarks deprecatory of severity: but from others he would ask, for a gracious overlooking of whatever errors may be detected in style or diction, on the grounds that this *opusculum*, aiming solely at practical improvement, consists of little more than a series of extracts from his case-book, with the remarks noted down at the time, (truly may he say *currente calamo*,)—and that he has been less occupied about the syllables than the sense—with the counters of knowledge, than with knowledge itself.

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Necessitas medicinam invenit, experientia perfecit. Quæ quidem primâ ætate rudis erat ac stupida; progressu verò temporis accedentibus in dies novis observationibus, sibique mutuò facem quasi præferentibus, cuncta præsertim regente, ac moderante rationis lumine, liberalis facta, est, et erudita.

BAGLIVI DE PRAXI MEDICA. Lib. I. cap. ii.

Necessity originated medicine—experience perfected it; and that which at first was rude and uninformed, became endowed with skill and science by the progress of time, and by the continual accession of experimental observations, one casting light on another, and made under the moderating influence of superintending judgment.

FREE TRANSLATION.

ON CONSUMPTION,

&c. &c.

CHAPTER I.

GENERAL REMARKS.

The absorbing interest with which every medical practitioner of kindly feeling and of long experience must have watched the insidious approach or the withering progress of Tubercular Consumption, affords an ample apology for any attempt made to diminish its mortality. Under such feelings, and with such motives, the writer, on whose way of life the shadows now sensibly lengthen, has ventured to submit to the attention of his professional brethren, observations which he trusts may lead, under Divine Providence, to the prevention of this perilous disease, in many instances, and to the more successful treatment of it, in others.

He has also had in view a state of constitution, which demands at the hands of the medical practitioner much judicious attention; for, although it may not terminate in Pulmonary Consumption, yet it places all persons endowed with it in constant danger of incurring disease, either functional or organic, of some perhaps vital part. All such persons may be considered as standing on the brink of a precipice, over which, causes, usually of trifling influence on the human animal economy, may suffice to cast them. He alludes to a state which he has denominated *delicate health*—in which term he includes tuberculous cachexia, as one of its conditions or results. To remove this state, or to prevent the danger constantly impending, are *desiderata* of the utmost importance to human life; and the following observations have been written, no less with a view to these objects, than to the prevention and treatment of phthisis pulmonalis. The pathological and pathogenetic peculiarities of this state will be hereafter detailed.

It would be an inexcusable waste of the reader's time, if the writer were to offer any observations on the propriety and necessity of preventing actual disease, when possible—the propriety and paramount necessity are admitted, orally; but how far from their being practically attended to, the records of disease sufficiently prove; for it is demonstrable that a large proportion of such maladies have originated in a neglect of some of the laws of sound physiology. If the anvil of the human frame, in some individuals, will not safely bear the strokes which the ordinary course of events must cast upon it, it is the duty of the medical practitioner to attempt to strengthen it; or else he ought to direct, how such blows may be either more safely borne, or altogether avoided.

Having had opportunities of acquiring considerable experience of his own, and as Baglivi writes, "cuncta præsertim regente ac moderante rationis lumine," he has endeavoured, wherever he could, to avoid telling again "the twice-told tale," by copying out the experience of others—what he has to relate may be received as inferences from what he has himself seen; and he trusts he may be allowed to say, not by way of boast, but by way of guarantee, that, as an observer, both his previous education, and a mind not unobservant, have fitted him for a faithful and accurate scrutiny into the facts which have come before him; but should it happen, that any striking coincidences with other writers be here or there detected, without acknowledgment, he begs to disavow any intention of pirating the observations of his predecessors, or of setting up a claim to priority or originality—satisfied alone, if good be done, whether that good is effected by himself or not; and contented, if the record of his individual experience should accomplish no more than a confirmation of the conclusions of those who have preceded him, in their efforts to prevent the formation of disease, or to cure it when formed.

The pleasure he has felt in witnessing his increased success, since he has adopted the mode here recommended, of treating this disease, and of strengthening the invalid, has been "its own exceeding great reward" —and if his experience shall be corroborated by that of others of his fellow-labourers in the profession—and if it should effect a more frequent prevention, or a greater curtailment of mortality in this complaint, he will gladly deem any other consideration as altogether a secondary matter.

In a practical point of view, it will be sufficient to treat of this disease, and its prevention, as it exists—in a state of predisposition, or of latent tubercular deposits—in the stage when the tubercles assume an active state—when they have softened—and in the cases of mixed or complicated phthisis.

The first is the most important period; for although, we cannot consider the disease to have already commenced, yet must we view all persons so situated as in the greatest danger, and as requiring quite as much attention and even professional care, as in the latter stages. It is here, that well directed efforts will avail much, in preventing the dread onset of symptoms: and the assertion may be hazarded, that tubercles may be prevented, for many years, from breaking out into irritative action, with all its intractable consequences, if those whose good fortune places them above the necessity of providing for the day that is passing over their heads, would attend strictly to the means of safety herein described.

What are the signs of general health or of a predisposition to phthisis?

We shall find the consumptive and scrofulous constitution to be commonly associated with a fair complexion—light hair—a tumid upper lip—a delicately fair skin, with the veins large and prominent—the head large—the intellect, in many cases very precocious, and mind highly sensitive—the body sensible to chills—neck long—the chest narrow—and perhaps the stomach tumid—the feet almost invariably cold—dyspnæa on exertion, at times attended with palpitation—diminished muscular power, showing itself in a weakness of knees and ancles—a pulse easily accelerated—appetite capricious, not unoften voracious, yet digestion is not well performed; and on any particular ingesta disagreeing, an irritation of the gastroenteric mucous membrane is often set up, which is removed, only by a febrile diarrhœa of several days' continuance.

In some cases there are, a dark complexion and sallow skin, with a defective condition of its functions; mental dullness and sluggishness of the body.

The eye affords almost unerring indications to the experienced practitioner, in the blueish or pearly state of the conjunctiva; *the dilated pupil;* and the long fringed eyelash; the intensely white (as if bloodless) forehead; the pinkish, or else livid eyelids; which are corroborated by the peculiarity of the whole physiognomy, recognisable without difficulty, by any one who is conversant with it.

With these physiological characters are often conjoined, redness of the eyelids—a tendency to lachrymation, and to inflammation of the conjunctiva, (the latter of very intractable nature)—paleness and puffiness of the face—flabbiness and unhealthy look of the skin—tendency to chilblains or to being frostbitten—the conglobate glands, in various parts of the body, enlarging apparently without exciting cause; and such persons, if attacked by defluxions from nose, or ear, or by cutaneous defœdations (to which they are especially prone), will have much difficulty in getting rid of them; whilst the ordinary diseases of childhood, bronchitis, measles, scarlet fever, whooping-cough, &c. are sources of the most imminent danger—requiring from the medical attendant the most prompt attention, the utmost decision, and the exercise of the profoundest judgment.

A low degree of vitality seems to prevail in this state of, what is not unaptly called, delicate health, or scrofulous diathesis; in consequence of which, predisposition to disease is augmented, exciting causes are endowed with power, and disease itself is less successfully borne.

Tubercles are usually deposited in a rounded form, of magnitude varying from that of a millet-seed or pin's head to a much larger size—that of an orange; they are yellow, opake, friable, without organization, are found scattered about singly or in masses, and are deposited, according to some authorities, in a solid form from the first,—according to others, in a fluid shape, but soon solidifying.

They may remain in a latent state for a variable period—even for many years—or on the application of exciting causes, they may begin to soften and assume a caseiform state—congestion of the surrounding vessels and texture takes place—a creamy pus-like matter is formed, which, seeking an outlet, makes a way for itself, through the surrounding pulmonary parenchyma, just as the matter of an abscess works its way to, and through, the skin;—some of the ramifications of the bronchia become implicated, and through their open orifices the tuberculous matter, mixed up with the surrounding secretions, is expectorated.

Should further tuberculous deposition be prevented, and the disease be successfully treated, disturbance ceases in the pulmonary organ, and the patient is restored to a comfortable enjoyment of health.

Tuberculous matter may be deposited in three distinct forms, viz. that of grey semi-transparent granulations—of caseous or crude tubercle—and that of tuberculous infiltration; but as it does not consist with the writer's views to reprint from the various excellent summaries of our knowledge of tubercles, to be found both in French and English authors, he will refer for further information to those valuable monograms—more particularly to the work on Consumption, written by Mons. Louis, which is a splendid instance of great acuteness—profound judgment—and untiring, well-directed labour.

CHAPTER II.

PATHOGENY.

The peculiarities of a constitution, such as that above described, seem to consist in a less energetic condition, or vitiated functional exercise of the organic nerves, manifested in a too delicately organised skin, without—and a tendency to sluggish action or congestion of the circulating fluids, within.

There can now be litttle doubt, "that the Tubercular Diathesis is in direct proportion to the development of this peculiar constitution," and that the deposition of tubercles is in persons, hereditarily predisposed, much favoured by, and in others, mainly dependant on, a deviation from healthy innervation, producing a morbid alteration, together with a remora of, or as some say, a congestion of the blood in certain organs—which remora or congestion leads directly to the formation or localization of tuberculous matter.

The matrix of this matter, according to Dr. Todd, consists of albumen or of coagulable lymph, imperfectly organizable—and the morbid alteration in the blood probably consists in an undue superabundance of carbon in it—for we must recollect that albumen contains nearly fifty-three per cent. of carbon.

As another consequence of this state of the nerves, an imperfect assimilation of the nutritive matter, received into the economy takes place—this is a powerful auxiliary in occasioning, or augmenting the mischief—and with this imperfect assimilation is combined defective secretion or elimination from the system of effete and useless matter.

"To sum up all," says Andral, "it appears to me, that in the present state of the science, tubercle must be considered as the result of a modification or perversion of secretion, which is often attended or preceded by an active sanguineous congestion. These congestions arise out of, and are caused by, an impaired organic nervous power."

This diminished power of the organic nerves is, with sole probability, the proximate cause of the phenomena observable in this disease; and accounts at once for the various pathological conditions—namely, the defect or failure in the capillary system, cutaneous and pulmonic—the perversion or suppression of certain secretions—the diminished decarbonization of the blood in the lungs and elsewhere—and the sluggishness of the circulation in the cutaneous, hepatic, and pulmonic vessels.

This sluggishness of the circulation most naturally occurs where the lungs are the least moveable during respiration, namely, in the upper lobes; and as in addition, we know, that in inspiration much less air is inspired than the lungs are capable of receiving—some say not more than a tenth part of what would be necessary for that purpose—it is not difficult to discover the reasons why imperfect decarbonization, and consequent deposition, takes place in the upper lobes, rather than in any other part of the lungs. That this state of the organic nerves may be congenital, we know—just as any other tendency to weakness or disease may be hereditarily derived—but while we know, that even in that case, much may be done to avert danger, we also are certain that, in the majority of instances, the neglect of physiological or hygienic rules, has been the sole agent in building up this destructive predisposition to disease.

The organization, and capillary system of the skin, depend for their healthy tone on the same system of nerves; and the capillaries are, at times, so very delicate, that the vessels shall give way on the slightest pressure;—a little friction, or even the gentle pressure of taking hold of an arm, will in such constitutions be often followed by lines or marks of extravasated blood, in shape corresponding with the parts pressed upon.

This altered condition of the blood, and of the nutritive function, is demonstrated, says Dr. L. Ch. Roche, 1st, by the nature of the causes which induce phthisis, and which act slowly, not directly upon the lungs, but upon the general economy—

principally however upon the blood, that prime agent of nutrition, and consequently the primary source as well of those modifications which deteriorate it, as of those which maintain its healthy character.

2d. By the serous and nearly colorless state of this fluid, in the menses of women who are becoming phthisical.

3d. By the diminution of its mass, as proved by Tozzi, Lieutaud, Bartholin, and Portal.

4th. By the emaciation;—the remarkable discoloration of the skin;—the loss of muscular power;—and the feeling of general uneasiness which often precede, for a considerable time, the appearance of any phthisical symptom, and which can more satisfactorily be referred to a general modification than to the formation of tubercles, which do not excite any local irritation.

5th. By the simultaneous development of a great number of tubercles in several organs, and which cannot be explained, either by referring to sympathy or to absorption—for tubercles are seen in organs having no relation of texture or function, and they are often found quite in a crude state.

What, then, are the remote or exciting causes that lead to the formation of this state of blood? and what are the means of prevention?

The two questions can be answered at the same time, by discussing the measures which should be enforced with respect to what the ancient physicians somewhat quaintly termed the *Res Non-naturales*, namely,—the air we respire—our food—the secretions and excretions—sleeping and watching—motion and rest—the mental affections—these being matters which do not enter into the composition of the body, but yet are necessary to its existence.

Under the first head we ought to consider the atmosphere, with regard to its purity, its temperature, its pressure or its hygrometric state, and its electric condition.

Atmospheric air is, as far as its chemical components are concerned, the same everywhere; yet it can hold, in solution, many invisible as well as visible effluvia—various other gases,—unhealthy miasmata—odours. The calorific and colorific rays of the sun penetrate it, and are again reflected into it, from the earth's surface—partial rarefactions take place—and the seasons influence it.

Atmospheric heat, cold, dampness or drought, some peculiarities in its impregnations and in its electric state, will cause disorders in the human frame. It would seem, that there were a more immediate connexion between the peculiar state of the air, and the kind of the disorders which were thereby excited, than what consists in the general disturbance of the nervous system and digestive organs, and the diseases which follow, by sympathy, in consequence of a predisposition thereto.

It is possible, there may be different mixtures of atmosphere which act as specific stimuli, and produce their corresponding peculiar diseased and nervous actions, which are again still further varied, in each individual case, by the particular state of constitution, and other circumstances of the patient.

Atmospheric electricity may produce unequal excitement, and its consequent state of exhaustion;—unhealthy miasmata and air of bad quality may overpower, suppress, or render partially torpid the most important functions of the animal machine;—and fatigue may be induced by atmospherical excitement, incommensurate with the powers of the constitution.—*See Foster on Epidemia. passim.*

With respect to epidemics, it may be asked—if there is, at the time they rage, no peculiarity of composition in the atmosphere—what is the probable agent that can effect so wide an influence in the atmosphere as must necessarily exist? Is there any one so likely as electricity, perhaps combined with, or conducting, some aerial poison?

We have lately read the account of an experiment, in which vaccination was effected by electrical communication. One end of a wire was inserted in a vaccine pustule—the other in an incision made by an unarmed lancet in the arm of another child; the electric fluid was passed through the wire;

it conducted the virus, and vaccination succeeded. This fact, if true, proves what has hitherto been only considered as highly probable; namely, that electricity can be a conductor of animal poisons.

As a judicious but anonymous writer says, "Whether electricity be the cause of epidemics or not, it at least possesses, in a striking degree, the powers which must pertain to such a cause, whatever it be.

"Electricity pervades the air in all directions; yet it makes no discernible change in its composition; and it possesses the mobility, which must characterise the cause of epidemics. Electrical changes in the atmosphere were observed to precede the visitation of the last great epidemic, the cholera, in India, Britain, and many other regions. Immediately before it appeared in Sunderland, the air was in a highly electrical state—thunder-storms were frequent, and there were frequent discharges of those fiery streaks called silent lightning. In India, similar meteorological changes were almost invariable precursors of pestilence.

Cholera preferred the vicinity of rivers, and large bodies of water. Another remarkable phenomenon in the history of cholera is satisfactorily explained by electricity. Supposing the whole atmosphere to be pervaded by a poison, whole communities might expect to be struck down at once. It was not so in cholera; and an electrical hypothesis could explain this objection. For, through electrical induction in the atmosphere, one individual, even in a room, may be exposed to a positive, while another, at the same moment and in the same chamber, may be exposed to a negative, atmosphere,—which means, to electrical influences of totally opposite kinds. If all this be true, the remedy will be found in the purification of the atmosphere."

The electrical state of the atmosphere, then, exerts a most marked influence over the human body—and many an affection of the brain or nervous system, which has been attributed to derangement of vascular action or of some other function, has owed its origin and existence to electrical changes in the air; but our knowledge of these changes or of their *modus operandi* is too limited, at present, for practical purposes—only we should take care not to mystify ourselves, by leaving such changes out of our calculations; meanwhile we must go on—experiment and watch—till more light breaks in upon us. Medical meteorology deserves more attention than it has hitherto obtained—and philosophical instruments are now brought to such perfection, that many difficulties, which formerly stood in the way of experiments, are now removed. But in order to attain and combine general results, various stations should be appointed by government, or by some of the learned societies in the metropolis. Such a system of making observations may possibly be in operation, but if there is, I am not aware of it.

The atmospheric air is composed of oxygen and nitrogen, with a very small proportion of carbonic acid gas. Before inspiration it consists of 23 parts oxygen, 77 nitrogen—and after expiration, 3½ per cent. of carbonic acid, or on an average 27½ cubic inches of carbonic acid are evolved from the lungs every minute, or about 40,000 cubic inches in 24 hours, which weigh nearly 3 pounds, and contain about 11 ounces of carbon.

"A man requires the oxygen of one-sixth of a cubical foot of atmospheric air per minute; but, because of the mixture of his breath with the air around him, he requires, to be safe, the ventilation-supply of two or three cubical feet per minute."—*Arnott.*

At each respiration 16 cubic inches of air, are on an average, deteriorated, and from 15 to 20 such respirations are taken in a minute; therefore 300 to 320 cubic inches of air are each minute poisoned by each individual, and rendered unfit for the support of life.

The difference between the air before, and that after respiration, arises from the action of the respiratory organs upon it—by which, its oxygen is instrumental in removing from the blood a great portion of carbon, and in changing the venous into arterial blood.

The chemical difference between arterial and venous blood is thus stated by Dr. Dalton to be:

	Carbon.	Oxygen.	Nitrogen.	Hydrogen.
Arterial blood .	50 : 2	26 : 3	16 : 3	6 : 6
Venous blood. .	55 : 7	21 : 7	16 : 2	6 : 4

A certain quantity of carbon is taken in by the stomach—for Dr. Dalton ascertained that eleven and a half ounces were taken into the stomach daily, by a person in ordinary health, in his solid and liquid food, and an equal quantity daily given off, from the body; of which, ten and a half ounces are supplied from the venous blood, and expired in the form of carbonic acid gas.—*Paper by Dr. Dalton, at the first meeting of the British Association at York in* 1831.

The ultimate elements of animal matter consist of four gaseous bodies:—Carbon—Hydrogen—Oxygen—and Nitrogen;—and by the varied union or intermixture of these bodies, the proximate animal compounds are formed.

Into the composition of these latter, carbon largely enters;—the fibrine alone, of which muscles are formed, containing more than fifty-three per cent. of carbon. Thus, it will be readily perceived that the human body has occasion for a good deal of carbon; yet, this quantity once attained, nature seems to bear with any superfluity of it very badly.

In asphyxia, the heart pulsates, for some little time, after the suspension of respiration;—black blood, that is, blood from which the carbon has not been removed, passes into its cavities—is conveyed to the brain, and the moment it enters into the vessels of this organ, it acts like a poison—a state of stupor instantly supervenes—the pupils of the eyes dilate—the respiration becomes laborious—the muscles of the body convulsed—and the person dies, poisoned by his own blood.

It may, then, truly be said, that the process of decarbonizing the blood—that is, of taking away from it, the superfluous carbon—is of vital importance; and to effect it, nature has not relied solely upon one organ of the human animal economy—but has set other functions actively at work, as auxiliaries.

That much depends upon the purity of the air, will be self-evident to any one; and this purity, when once attained by choosing to reside in some salubrious country situation, is to be preserved by maintaining a thorough ventilation, and a comfortable though not too heated a temperature in the rooms in which we live and sleep.

In effecting these two objects, it would be well if the objections which exist against open fire-places could be overcome—for it must always be very difficult to avoid exposure to great draughts of cold air;.and the feet, more particularly, can with difficulty be kept warm. As Dr. Arnott says, besides the unequal heating at different distances, from the open grates—and besides the scorching on one side and freezing on the other—the feet, unless protected from the draught, are constantly in an aerial cold bath; and perfect ventilation, even, is not attained. This gentleman recommends a stove, which is not open to the objections usually applying to stoves, viz.—that they destroy the air's purity and fitness for respiration, by the action of the heated metallic surface on the air in contact with it—and that the air, heated by common stoves, is exceedingly dry. Now, the self-regulating or thermometer stove is calculated to remove these two objections. The air cannot well be burnt by it; and a proportion of humidity can be secured, according to the dryness of the aerial mucous membrane of the invalid; but unfortunately this stove seems to be open to the fatal objection, that nothing like efficient ventilation can be attained, where it alone is used to warm an apartment.

When the indication of the hygrometer does not exceed fifteen degrees, we are directed by our feelings to call the air damp; from thirty to forty degrees, we begin to reckon it dry; from fifty to sixty degrees, we should account it very dry; and from seventy upwards, we might consider it as intensely dry. A room is not comfortable, or perhaps wholesome, if it has less than thirty degrees of dryness; but the atmosphere of a warm occupied apartment will commonly produce an effect of upwards of fifty degrees.

Children do not thrive well in cities, or large towns; and parents should try to secure healthy stamina to their offspring, by not allowing them to be reared and educated in such places.

"The air of towns is not so stimulant as that of the open country; and from the want of these stimulant properties, town air must be considered very unfavourable to the general tone of the health;—vigour and robustness are rare amongst those breathing it; on the contrary, they are marked by languor, paleness of complexion, and proneness to disease. These effects of town air will be difficult to appreciate by those accustomed to it;—they operate slowly and insensibly—but their result in the abbreviation of human life, is sure and demonstrable. With respect to London air, myriads of minute particles are suspended in it, chiefly perhaps derived from smoke—so much so, that at the distance of a few miles, it may be visibly distinguished from the surrounding atmosphere, and presents the appearance of a vast cloud or mist, as it is driven before the wind."—*Robinson.*

Another author says, "Many chaldrons of the most precious parts of our coal, that part which, with proper management, is convertible into gas for light, are to be seen floating in the atmosphere as smoke. Authors have calculated, that one-eighth of all the coal brought to London escapes in this way—which, at present, must be a loss of 100,000 chaldrons a-year."

Medical gentlemen in London may soon have ocular demonstration of these carbonaceous particles, by recommending that fine wire-blinds, made on the Davy principle, be fitted to the bed-room and other windows—the carbonaceous deposition on the outside of these blinds will be great, beyond expectation.

Now, coupling this single fact with the necessity for a complete decarbonization of the blood, and with the tendency existing in delicate health towards imperfect respiration — we would advise those who are of weakly constitution, or are threatened with phthisis, not to respire such an atmosphere; which must be constantly depositing most prejudicial or irritating particles on the extensive mucous membrane of the bronchia and air cells.

Town air is, also, probably defective on other grounds—namely, in the relations it bears to light and electricity; for, in regard to the former, many interesting facts show that its influence on the animal and vegetable economy is not inconsiderable.

Professor Traill, in the last edition of the Encyclopædia Britannica, says, "Probably, too, a part of the effect attributed to country air, in restoring to health the sickly child of the city artisan, is due to insolation or exposure to light, which appears to have the property of invigorating the vital functions, and of elevating the spirits of those who have suffered a long deprivation of its cheering influence."

The experiments of Dr. Edwards, which are highly interesting to the man of science, prove, "that the development of the perfect form of certain lower animals, depends on light. By inclosing tadpoles of both frogs and toads in different boxes, some of which freely admitted light, while others totally excluded it, and placing them in running water, he found that the tadpoles exposed to the light underwent the change to the perfect form of the animal, as usual; while the tadpoles excluded from the light, though they seemed perfectly vigorous, did not undergo the transformation, even though they had increased to double or triple their primitive weight."

"The influence of the sun's rays in deepening the color, or in giving a brown tint to the skin, seems to be more due to the light, than to the heat of the sunbeams; for the part of the skin covered by the clothes, though kept thus hotter than the parts exposed, do not undergo this change. The pale visage and enfeebled vitality of those who live much in obscure apartments, in prisons and mines, are well known; and though probably the most violent symptoms that characterize the anhæmia of miners, in which the skin assumes a yellowish, waxy hue, and the lips become bloodless, be due to breathing a vitiated atmosphere, yet some influence is certainly attributable to want of light.

"In climates where the heat renders a state almost approaching to nudity desirable, all travellers agree that the development of the human frame is early, and the form has fewer deviations from the symmetry natural to the race than among the northern nations. Deformity is said to be comparatively rare in hot climates, where the surface is much exposed; and this has been attributed by Dr. Edwards, in some measure, to the influence of light. Perhaps after making due allowance for the less chance of rearing sickly or deformed children among barbarous nations, and for the prevalence of infanticide among them in such cases, there is considerable justice in his remarks on the subject; without which, it would be difficult to account for the muscular and rounded form, so often observed among nations agreeing in nothing except in the prevalence of a very free exposure of their persons to the full influence of light; as among the Mexicans and Peruvians, the Chaymas and Muyscas of South America, the Caribbs of the Antilles, the inhabitants of the numerous groups of the South Seas, or the free inhabitants of Africa."

Scrofula has been considered to be a species of animal etiolation.

The influence of light on vegetation is very remarkable, and well known—the etiolation of plants is familiar to most of us; but the following extract affords an instance of the important agency of light on vegetation, and a beautiful example of the simplicity of the means employed to produce diversified effects in the works of the Creation.

"The green color of vegetables, and even the form of their leaves, are materially influenced by light. Some experiments of Senebier would lead to the conclusion that it is the violet end of the spectrum which has the greatest influence in counteracting the effects of etiolation.

"This production of the dark colour of plants would appear to depend upon the decomposition of carbonic acid by the living vegetable, when acted on by light, and the fixation of carbon. Growing plants in sunshine give out oxygen by the decomposition of carbonic acid; but in darkness, carbonic acid is evolved; and Ellis has demonstrated, in his interesting Essays, that oxygen, under such circumstances, always disappears from the air in which vegetation is going on.

"Light, then, acts an important part in the vegetable economy, by fixing the most dense and abundant of the three general elements of vegetable matter. The influence of light in maturing fruits is well known. The fruits which, when ripe, are saccharine, are previously acid; that is, their hydrogen and carbon are combined with an excess of oxygen. Light, by favoring the evolution of oxygen, and the fixation of carbon, converts the vegetable acid into sugar, and thus provides a suitable food for the embryon in the seed.

"On the other hand, the influence of light is not less conspicuous in another class of vegetables. In an early stage of the germination of seeds yielding farina when ripe, the tender rudiment of the seed is enveloped in a slightly saccharine juice, as may be seen in young wheat and maize. Now, what is wanting to convert them into farina is the evolution of oxygen, and the fixation of carbon. These two indications are fulfilled by the influence of light on the growing vegetables; and thus we can explain why the sun's influence is so essential in the one case to the formation of sugar from an acid; and in the other, of farina from a saccharine juice. The same principles will explain why a farinaceous seed, when planted in the ground, becomes again saccharine. Light is now wanting; oxygen is absorbed, and partly aids in the evolution of the redundant carbon—partly is added to the two other general elements."

Dr. Ashwell truly observes, "Chlorosis (and chlorosis is often attended with phthisis, and phthisis with chlorosis) is a rare affection in rural districts, where female youth are much in the open air; where it is not unfashionable to walk and run, and where it is not considered a gross violation of good breeding to sport and play with activity and vigour. Such girls acquire energy of system, each organ or viscus is naturally developed, the vital fluid is abundant and of excellent quality, nutrition is healthy, and puberty is attained without trial or difficulty."

Chlorosis, like phthisis, is dependent on defective innervation, producing a morbid alteration of the blood, and affecting the vascular system, the capillaries in particular.

In London, 236 out of every 1,000 deaths are caused by phthisis; and it is computed that one-half of the children born in London attain only two or three years of age—instead of surviving to the age of forty or fifty.

The wonderful influence of mere change of air, in disease, has been established from very early times, and needs no illustration. Celsus has long ago said, "Pessimum ægro cœlum est, quod ægrum fecit;" and he goes on to say, "adeo ut in id quoque genus, quod natura pejus est, in hoc statu salubris mutatio sit." Still, in illustration, it will not be irrelevant, if the author relate his own case. In Westminster, in a street nearly if not quite on a level with the Thames, he had been, for many months, severely distressed by imperfect ague, and rheumatism of the utmost severity—the diurnal paroxysms of pain approached to the agony of tic douloureux—various joints became in turn affected, till the disease seemed to centre in the right elbow, which swelled, and became so hard, immovable, and contracted, that some of his medical friends deemed it anchylosed. Unwilling to leave his practice, he consulted many friends, at that time eminent in the profession — neither advice nor medicines were spared—all in vain—until at length, extremely emaciated and exhausted, he was forced into a residence with a friend in the country, residing a short distance from London.

Such were the wonderful effects of the purer air and change of climate that, without any other remedial means, his elbow-joint lost its hardness—the muscles partly recovered their tone—in ten days he could bend the joint and the arm, and was soon after enabled to return to the metropolis.

When we take under consideration the peculiarities of climate, in any particular place, we must not only ascertain its exposure to particular winds; its elevation above the sea; the neighbourhood of the sea; the degree of cultivation of the country; the reigning winds, &c.—but also the nature of the subsoil—for if, as is the case with London, the surface-soil lies upon blue clay, the draining of water on the surface will take place but slowly—much moisture, with various miasms, will exist in the atmosphere, which, in the invalid, or in those predisposed to aguish or rheumatic complaints, will give rise to fevers, rheumatisms, anomalous pains, or stomach complaints.

Until lately, due attention to the subsoil has not been paid; and many a practitioner, in the full obstinacy, it may be, of preconception, will even now require no further evidence against a locality, than a running river and a few trees; even although facts are favorable to its salubrity—yet as the quantity of wet, lying or deposited on the earth's surface, must either readily strain downwards, or else be evaporated through the atmosphere, a gravelly or porous subsoil must exert considerable influence in diminishing the humidity of the atmosphere, and in modifying the climate.

Before we recommend a change of residence or climate to any patient, we should make ourselves thoroughly acquainted with the peculiarities of the locality; and we may derive assistance from a knowledge of its endemial diseases—its volkskrankheiten.

If proper precaution be not taken, we may even recommend a change from bad to worse. For instance, we should decidedly endanger the life of a person disposed to a certain kind of hœmoptysis, if we were to send him to a humid climate, and where there is diminished atmospheric pressure; for such diminution of pressure acts on the muscular fibre by relaxing it, and reducing its power—it occasions lassitude—it expands the blood, and renders the vessels turgid—it favors congestion in the lungs—and hœmorrhage from them. There are other species of hœmoptysis, which would be benefited by a humid climate—showing the necessity of discrimination.

The proper ventilation of the rooms we live in, particularly our bed-rooms, is of great importance;—for, in addition to the vitiation of the surrounding air, by respiration, the skin is actively at work, evolving secretions of a most offensive nature.

Dr. Arnott thus beautifully describes the natural ventilation, which takes place after breathing:—"In respiration a man draws into his chest, at one time, about twenty cubic inches of air, and of that air, a fifth part is oxygen, of which again, there is converted into carbonic acid gas nearly a half. The carbonic acid, if afterwards inhaled, would be noxious to the individual. About fifteen inspirations are made in the minute, vitiating, therefore, about 300 cubic inches, or nearly one-sixth of a cubic foot of atmospheric air, but which, mixing as it escapes with several times as much, renders unfit for respiration at least two cubic feet, under common circumstances. The removal of this impure air, and the supply, in its stead, of fresh air, is perfectly accomplished by an uninterrupted natural agency. The air, which issues from the chest, being heated to near the temperature of the body, or 98°, and therefore dilated—is specifically lighter than the surrounding air, at any ordinary temperature—and therefore ascends in the atmosphere to be diffused there, as oil set free under water rises in it to spread above; in both cases, a heavier fluid, in fact, pushing up and taking the place of a lighter. This beautiful provision of nature, without trouble to the party, or even his being aware of it, is relieving him, at every instant, from the presence of a deadly, though invisible poison, and replacing it with pure vital sustenance; and the process continues while he sleeps as while he wakes, and is perfect for the unconscious babe, or even brute creature, as for the wisest philosopher. The process may be called natural ventilation; and in the open atmosphere, while the wind blows, and air is as uninterruptedly passing the person, as the water of a mountain stream is passing its finny inhabitants, the process is perfect. Where men, however, construct apartments which shut up or confine the air, the action is disturbed; and then, notwithstanding the ventilation effected by the crevices, ill-shutting doors, or windows, not a little art is in many cases required."—*On Ventilation, p.* 14.

To secure proper ventilation, we must effect the introduction into the room, of four feet, or of from two to three cubical feet per minute for each individual in it; and we have to avoid allowing a stream of cold air to affect the body partially—more particularly during sleep, when the skin is especially sensible of frigorific impressions.

The temperature of the air in the room, should not exceed 58, or in some cases 60° of Fahrenheit; the cooler it is, provided it does not appear to chill, the better.

It has been objected, that persons living in a temperature of 60° would be more liable to catch cold, on going into a colder atmosphere—but this is not true; and those who have caught cold, in such a way, have been exposed to a temperature, from open fires in a room, higher than this, of 60°. It is well known, that a person who shall take a warm bath is less disposed to take cold, on those days when he has bathed, than at other times—the skin seems better able to resist frigorific impressions on those days.

The effect of heat upon air is, of course, to expand it:—"It then occupies a larger space in proportion to its weight, and therefore at each inspiration, less air is really breathed—less oxygen obtains access to the blood, which is consequently not so completely aërated as it should be."

Accordingly, persons respiring such an atmosphere soon feel faint—and in crowded assemblies, or in a room not sufficiently ventilated, people are often carried out in a fainting state—partly from this cause, partly from the carbonic acid gas floating diffused in such an atmosphere;—hence, too, it is that some persons suffer from headaches after attending lectures, &c. in ill ventilated rooms.

In considering the temperature, and the hygrometric state of the air, we may allude to the necessity of preventing too cold or damp an air from having access to the cutaneous surface, by clothing in flannel and in silk (waistcoats, stockings, &c.), which being non-conductors of electricity, prevent its passing freely from our bodies, during the damp, foggy, weather.

We must try to maintain such a state of the skin, as that the insensible perspiration shall continue to be *transuded,* and the blood to be determined from the central or internal organs to the periphery.

If the subcutaneous veins perform (as Mr. Wardrop thinks they do) the office of a reservoir, and thus prevent congestion of blood within the pulmonary vessels—the good effects derived from keeping the surface warm, and these veins dilated, while the action of the muscles maintain a proper circulation of the blood within them, are easily accounted for.

The feet in particular, should be very warmly covered; the normal temperature of the feet is not a bad index of a healthy state of the system at large; and accordingly we find, that if a person's digestive organs are out of order, or any other internal viscus is deranged from a healthy state, coldness of the feet is one of the very first symptoms observable.

If chills be suffered to take place on the surface, more blood than usual circulates within the great blood vessels, and more slowly than it ought—deoxygenation of the blood is not assisted by the cutaneous functions, and is impeded in the lungs—carbon accumulates, and the organic pulmonic nerves are no longer supplied with healthy blood, become oppressed in their action, in turn re-act on the blood, and augment the mischief in rapidly increasing ratio.

The night air is particularly perilous—for then, miasms and chilling vapours. which had been raised from the earth by the day's solar heat, again descend upon its surface; but the invalid must be cautioned to take great care during all variable seasons; and as a general rule, particularly during the months of February, March, April, May, September, and November. The following meteorological extracts from various sources, will show the average variations of our climate throughout the year:—

England, being an island of no great extent, is subject to rain, and exempt from great heat or extreme cold. The climate of the south of England resembles that of the opposite shores of Brittany and Normandy; whilst that of the north is similar in temperature to Denmark, which, like the north of England, is a narrow country, inclosed on either side by the sea. The west, exposed to the Atlantic, and containing hills and mountains which intercept the clouds, is much more rainy than the east, where the adjacent water is of considerably less expanse. Another remarkable difference arises from the difference of latitude; the season being a fortnight or three weeks later in the north than in the south.

During the six winter months, from October to March, the mean temperature of the central part of England is commonly between 42 and 43 degrees of Fahrenheit. In December, January, and February, it is generally below 40 degrees; in July and August, 62 to 65 degrees. The variations of temperature within 24 hours are more strongly felt in the equinoctial months, March and September, when there is often a difference of 18 or 20 degrees between the day and night; whilst in the summer months, this difference seldom exceeds 12 or 15 degrees; and in December or January is only from 6 to 8 degrees. The mean annual temperature, noon and night, of the central part of England, is about 50 degrees. The greatest summer heat seldom exceeds 80 degrees; and the cold of December and January is rarely below 20 or 25 degrees. The sensation of cold often depends more on the force of the wind, than upon the state of the thermometer—strong, cold, winds, are very dangerous to the invalid. Of rain, the largest proportion falls in the north-west of England, particularly in Westmoreland and Lancashire;—there, the average quantity is found to be 45, 50, and in some situations, 60 inches; whilst the average of the kingdom at large is from 30 to 40 inches. The prevailing winds are west and south-west.

In January, the mean temperature varies from 39.8 degrees, the mean highest in the day, to 30.4 degrees, the mean lowest at night. As to moisture, if we denote the complete saturation of the air by 1000, the mean state of this month would be 939. The quantity of rain greatly exceeds the amount of evaporation.

In February, the mean temperature increases 2 degrees nearly. The daily mean maximum rising to 42.4 degrees; the nightly advancing to 33.7. This inequality is partly owing to the increased influence of radiation under a less clouded sky, which dissipates the increasing heat. The quantity of rain is at its minimum—but little exceeding the amount of evaporation. The saturation of the air falls to 905.

In March, the temperature advances 6 degrees, while the dew-point rises only 4 degrees. This increase is chiefly during the day, and takes place by sudden starts. Evaporation is rather more than doubled, as well as the quantity of rain, which it slightly exceeds. The moisture of the air is reduced to 831.

In April, the mean temperature rises only 6 degrees; the dew-point 4½. The mean of minimum saturation is 651. Evaporation is increased to 2.290 inches, and the quantity of rain does not exceed 1.786 inches.

In May, the temperature still outstrips the advance of the vapour, and the atmosphere attains, very nearly, its greatest dryness. Saturation is 769; the mean minimum 597. Evaporation amounts to 3.286 inches, and rain to 1.853 inches.

In June, the advance of the dew-point, and of the daily temperature, are nearly equal. The dryness is at its height, and the energy of the sun's rays is at its maximum; though the maximum temperature of the air, does not occur until two months afterwards. Maximum temperature averages

69.4, minimum 48.1 degrees. Saturation of air, 762; mean minimum, 597. Least rain in this month.

In July, mean temperature, 69.2 degrees; mean minimum, 52.2 degrees; hygrometric degree, 811; mean minimum moisture, 658; evaporation decreases to 3.293 inches; maximum rain, 2.516 inches.

In August, the temperature is but little reduced, owing to the hot nights; evaporation, 3.327 inches; but the rain decreases nearly one-half—the average being only 1.453 inches; the saturation, 819; mean minimum moisture, 677.

In September, the temperature is sensibly reduced; precipitation and evaporation nearly upon a par; the barometrical changes are great and sudden—often very trying to the invalid.

In October, an increasing canopy of clouds preserves from needless expenditure, the remaining heat of the earth, by reducing the effect of radiation; mean temperature falls 9 degrees, nearly; the dryness is reduced to 4.1 degrees; and the moisture increases to

870; evaporation decreases to 1.488 inches—the rain being 2.073 inches.

In November, the air is nearly saturated with moisture. The temperature is nearly 42.9 degrees; the dew-point averages no lower than 40.5 degrees; the dryness, therefore, is only 2.4 degrees; and the moisture averages 910. The precipitations are augmented to 2.400 inches, and only 0.770 inch are carried off by evaporation. The comparative warmth of this month is owing to the heat given out by the condensation of vapour into rain, &c.

December is similar to November.

The highest and lowest temperature for each month are as follow:—

	Jan.	Feb.	March.	April.	May.	June
Highest...	52	53	66	74	70	90
Lowest....	11	21	24	29	33	37

	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Highest...	75	82	76	68	62	55
Lowest....	42	41	36	27	23	17

The weight or pressure of the atmosphere depends on its electrical state, as well as on its humidity. Any great and sudden changes in it, as indicated by the barometer, exert a very marked influence on the invalid, and especially on those who are affected with diseases of the thoracic organs. When a storm occurs, or just before it sets in, some persons labouring under pneumonia, hœmoptysis, phthisis, &c. have been observed to die suddenly; and their sudden death could not be referred to other than this atmospherical cause. Owing to the great difference of pressure of the atmosphere in elevated situations, from that of the air in low places, hectics cannot live there, but are obliged to leave mountainous regions or elevated planes; and it is said that those Swiss who are hectic, go to Holland, for relief. In low, fenny districts, too, consumption is rare.

A quart of air taken near the sea, at the temperature of 50 degrees of Fahrenheit, and the barometer at 29 degrees, weighs 15 grains. The surface of the body of a middle-sized man, bears the weight of 30,244 pounds.—Now, under the equator, and near the level of the sea, the barometer does not vary three French lines; but the farther we pass from the equator, the more this variation increases. In our temperate climate, it is subject to a range of three inches, equal to 4,000 pounds weight of pressure.

Dr. Prout relates an interesting experiment on the weight of the atmosphere, made for six weeks previous to the appearance of the cholera in London, 1832. On the 9th February, 1832, the weight of the air suddenly appeared to rise above the usual standard; but the rise was referred to some accidental error, or to some derangement of the apparatus employed,—great care was then taken to avoid error. The air retained an augmented weight about six weeks longer. The increase of weight was small, but still decided and real. Dr. Prout continues to say, there seems to be only one mode of rationally explaining this increased weight of the air, at London, in February, 1832, which is, by admitting the diffusion of some gaseous body, through the air of this city, considerably heavier than the air it displaced.—About the 9th February, the wind in London, which had previously been west, veered round to the east, and remained pretty steadily in that quarter till the end of the month. Now, precisely on the change of the wind, the first cases of epidemic cholera occurred in London; and from that time the disease continued to spread. That the epidemic cholera was the effect of the peculiar condition of the atmosphere, is more, perhaps, than can be safely maintained; but reasons, which have been advanced elsewhere, lead the writer (Dr. Prout) to believe that the virulent disease, called cholera, was owing to the same matter that produced the additional weight of the air. These reasons are principally founded on remarkable changes in certain secretions of the human body, which, during the prevalence of the epidemic, were observed to be almost universal; and that analogous changes have been observed in the same secretions of those who have been much exposed to what has been termed malaria.—*Dr. Prout's Bridgewater Treatise, pages* 352 *&* 353.

CHAPTER III.

SECRETIONS AND EXCRETIONS.

The decarbonizing of the blood does not solely depend on the due performance of respiration—for carbon is eliminated from the system, in the biliary secretion,—in the urinary,—and also by the cutaneous excretions.

The two main outlets for carbon are, the lungs, for carbon combined with oxygen, so as to form an acid gas—and the liver, for carbon in an inflammable or resinous form; and I have found a very efficient assistant as a cholagogue and decarbonizer in the outward application of the nitro-muriatic acid solution, which seems to act specially on the liver. As a prophylactic in the tubercular diathesis, it claims precedence over every other external application; and it might be used as a lotion to the chest.

Thus, there are no less than four important portions of the human frame—the lungs, liver, skin, and kidneys—all employed to remove carbon from the blood; and there is a quadruple connexion between them, by which, if one function fail partly or wholly in its due performance, others become active in relief.

The liver, more particularly, acts vicariously, when the function of the lungs is interrupted—as we see in inflammation of the lungs, in tubercle, or in diseases of the heart—which last operate secondarily on respiration.

Dr. Copland, some few years ago, attempted to prove, that the quantity of carbonic acid gas formed by respiration, in a given time, is much diminished in high temperatures, and under circumstances which lower life. Now, if the quantity of this gas be diminished, the writer would be inclined to account for the circumstance by supposing that the atmosphere in such climates, being heated to a degree equal to or above that of the human body, interferes with the due performance of expiration, and of that natural ventilation which has been already described in these pages. In the former case, the extreme heat causes a lassitude of the respiratory muscles, and thus a greater difficulty in expiration; in the latter, it prevents that ready ascent of the air and halitus to be expired, which is so much assisted by a lower degree of temperature of the atmosphere. Even in our own climate, the same animal consumes less oxygen in summer than in winter, when more animal heat is required to be evolved.

Whether this hypothesis be correct or not—whether the rarefaction of the air in hot climates, or diminished power of the organic nerves, is the cause of the phenomenon—the fact is well substantiated, that respiration in such climates is less active, or perhaps, we will say, less depuratory, than it is in cold ones. Carbon then accumulates in the blood, the skin or the liver sets up an increased action, and thus removes some of the carbon which would have remained to poison the blood, and pave the way for typhus and other fevers, or for Asiatic cholera.

Many consider the liver the principal decarbonizer. In the fœtus, it is the sole agent in this process, and its size is proportionate to the importance of its office. In other animals, the larger the liver, the smaller are the lungs; and inversely in all.

Remedies, then, that will act gently on this viscus, must possess great power in curing disease, and still greater power in preventing it in most cases—and in all cases where its vicarious action becomes necessary.

The kidney is also auxiliary to this process of decarbonization: for, by analysis (after the water has been abstracted), carbon is found to form about twenty per cent. of the excreted urine. Few diseases destroy life more quickly, none more certainly, than a total suppression of this secretion. In ischuria, if unrelieved by art, do we not see coma and effusion on the brain rapidly supervene, and the patient die, within a few days, in a state of stupefaction

—notwithstanding that the skin has been actively at work as a substitute; and is it not highly probable that this has been caused by a too carbonized blood circulating through the cerebral vessels?

Haller has computed that twenty pounds of matter are removed from the human body every twenty-four hours, by the different excretory organs: namely, four pounds by the skin, four pounds by the lungs, four pounds by the kidneys, and eight pounds by the intestines: the skin removing hydrogen and some carbon—the lungs, carbon largely, and hydrogen—the liver, hydrogen and carbon—the kidneys, azote—the large intestines removing the excrementitious residue of the aliment. Dr. Dalton ascertained that he produced in the twenty-four hours, by breathing, 2 lbs. 8 oz. troy of carbonic acid, containing 10¼ oz. of carbon, avoirdupois; while ¼ oz. of carbon was exhaled through the skin. His daily consumption of food amounted to 91 oz., and his excretions accounted for 84½ oz., the remaining 6½ oz. escaped by the cutaneous respiration. Six pounds of matter entered the system daily—five pounds were water, one pound carbon and nitrogen; one-eighteenth passed off in fœces; one-half in urine; one-sixth of the remainder, by the skin; five-sixths by the lungs.

If healthy bile and urine flow in sufficient quantity, and the skin perform its functions, the lungs will not be overburthened with carbon; neither will any tendency to internal venous congestion, or remora of the blood, exist.

The skin is the organ of sensation or touch; of transpiration or secretion; of absorption; and it has a power of regulating the temperature of the body, and of acting on the atmospheric air in contact with it.

To a surface, the extent of which has been estimated at 2,500 square inches, endowed with this last named mode of action, and the daily secretion from which amounts to not less than thirty ounces, rising even to forty in hot climates, much importance cannot fail to be attached; and accordingly a very powerful lever the cutaneous surface affords us, by means of which we may operate beneficially on those who are in delicate health, or in whom disease has already commenced.

According to Jurine's experiments, a portion of the oxygen of the air in contact with the skin disappears, and is replaced by a corresponding portion of carbonic acid; while the azote does not appear to be acted upon.

Hallé and Nysten make the following deductions from Jurine's experiments:—

1. The carbonic acid, arising out of this action of the skin on the air, is in proportion to the vigour and activity of the individual.

2. *Muscular exercise* augments the quantity of this acid.

3. The quantity of this acid is lessened by every cause that diminishes the activity of the muscles and of the functions of the skin.

Jurine thinks this carbonic acid is formed at the surface; whereas Spallanzani thinks that oxygen is absorbed, and carbonic acid excreted, by the skin.

If there is some difficulty in deciding upon the question respecting the chemical action of the skin upon the air, in the human subject, no one will deny that there is an action of this description in cold-blooded animals. In many of the lower tribes, the lungs are entirely wanting; yet they consume oxygen, and generate carbonic acid, like the more perfect animals.

Mons. Collard de Martigny has attempted to demonstrate the absorbing powers of the skin, by inclosing his body in an atmosphere of this gas, breathing, at the same time, the external air through a tube. In ten minutes faintness supervened, and he was forced to hurry out of the apartment, or he would, he feared, have been asphyxiated.

"There is an obvious difficulty in bringing this question to the test of direct experiment, arising from the fact that exhalation or transmission outwards is unquestionably taking place, and in general to a greater degree than we can expect it to take place, in the opposite direction. This very objection, however, furnishes us, by an analogy, with one of the best arguments in favor of cutaneous absorption, since we have the authority of several investigators, and more especially of Fodera and Dutrochet, to prove that imbibition and transudation are reciprocal and simultaneous."—*See Notes to Dr. W. F. Edwards' Work on the Influence of Physical Agents on Life, translated by Drs. Hodgkin and Fisher, p.* 479.—*See also, ibid, p.* 12, The detail of an experiment which proved that the surface of asphyxiated frogs' bodies acted on atmospheric air, and produced carbonic acid in sensible quantity. The skin is the chief outlet for hydrogen.

In addition to preventing sudden chills, by warm and dry clothing, we must keep the surface constantly clean, and the pores open, by occasional warm or tepid baths, or ablutions with friction; and to these may be added, with the writer's strong recommendation, iodine baths, or spongings with a very weak solution of iodine and hydriodate of potass. Indeed, he knows of no single external means of strengthening a weak constitution, so powerfully efficacious as these iodine baths; but he does not rely so much on the strength of the solution as in the repeated applications — and would advise, with a view to promote its greater efficiency, that the scales, or various matters deposited on the skin, be previously removed by ablution. Some constitutions will bear the iodine bath or solution cold; but in other cases, it must be warmed, so as not to cause a disagreeable chilling impression.

The frequency of the iodine baths, or spongings, must be regulated by the effects: — some skins are more easily stimulated than others—and if we do not take great care, we may do great mischief by over-stimulation, which would be followed by a corresponding degree of exhaustion; so as to prevent a due performance of the cutaneous functions. He who is experienced in the use of iodine (more particularly the external use), will know how to avoid this error.

By these bathings or spongings, the skin will be strengthened, enabled to resist morbific impressions, and to perform all its healthy functions.

No habit can be more preventive of disease than frequent bathings; and he would indeed be a benefactor to his fellow-creatures who would apply some of his wealth to the erection of baths, to which the poor people might be admitted by tickets, or letters of recommendation, as they now are, to dispensaries; or subscribers might join to raise the funds necessary for such a purpose. The detail—as to hot, cold, or vapour bath, the renewal of the water, &c.—might easily be arranged. Other nations, both in hot climates and in cold, maintain public baths for all classes. Why should not wealthy England? Yet so far is this from being the case, that although there is a superabounding plenty of dispensaries, there is not a single bathing institution, where even those who require baths for diseases of the skin, &c. can be gratuitously admitted.

CHAPTER IV.

EXERCISE.

UNDER the head of Motion and Rest, we must consider Exercise—and a more effective mode of keeping the body in health can hardly be resorted to, than that of taking sufficient *daily* exercise.

It is no new thing to extol the virtues of exercise—for Ferrandus, in the seventh century, calls it "A spur of a dull sleepy nature, the comforter of the members, cure of infirmity, death of diseases, destruction of all mischiefs and vices." "Exercitium, naturæ dormientis stimulatio; membrorum solatium; morborum medela; fuga vitiorum; medicina languorum; destructio omnium malorum;" and Celsus says, "Ignavia corpus hebetat, labor firmat; illa maturam senectutem, hic longam adolescentiam reddit,"

—"Idleness enervates the frame, labor fortifies it: the first tends to produce premature old age, the last to perpetuate adolescence."

The amount of exertion should never exceed that healthy degree whereby a grateful sense of activity and comfort is produced —for otherwise exhaustion and much discomfort will ensue; it must be proportionate to, and kept within, the powers of the individual. The exercise should be taken daily —and, if possible, in the open and dry air; and the invalid, who at first can only walk a short distance, should not exceed that distance for some time, but augment it gradually. In the case of females, the muscles should have full scope, and all ligatures—everything that would press upon or confine the muscles, such as tight stays, &c.—should be avoided.

Enough has been said about tight lacing and tight stays,—many authors have pointed out the numerous ill effects resulting from them; and it is hoped their remonstrances will have the happy consequence of opening the eyes of mothers—even of those who are the leaders of fashion. I have observed that the infant, at its very entrance into life, has its little chest compressed, so as to impede the natural expansion of the sternum and ribs, by the nurse tightly bandaging the lower part of the thorax and the abdomen. Accoucheurs would do well to prevent this practice; for it is not exceeding the truth to say, that in children hereditarily predisposed to consumption, a chicken-breast formation may thus be favored. In rapidly growing girls, the clothes should be closely examined from time to time—for in such children they will often unexpectedly become much too tight, and a pernicious habit is thus early originated, of first bearing, and then requiring artificial pressure and support.

It may be here observed, that Creative wisdom never intended that the mortality of children should be unavoidable—amounting, as it is said to do, to the death of one-half of them, between birth and five years of age. On the contrary, the mother's well-instructed care availeth much; but, unfortunately, mothers in the lower classes are ignorant, superstitious, and have no good fixed principles to act upon; while many of those in the upper classes will not attend to their children themselves, but entrust the sacred care—their mental and physical training—to some of the most ignorant in the community. It is in the middle orders of society that children are best attended to—where the parlour is the nursery—and where the mothers are not above doing their duty in this respect.

Muscular exercise strengthens the whole system: by it digestion is promoted, respiration excited, the circulation of the blood quickened, and (which is of essential importance) this circulation is maintained throughout the cutaneous capillary system; the secretion of the bile is assisted, and venous congestions in the abdomen prevented.

Mr. Wardrop has lately directed attention to a very important function, which he denominates the musculo-cardiac; and which is powerfully influential in directing the transmission of the blood to and through the heart—thus directly acting on the circulation. The agents are the muscles, which, if properly exercised, promote by their pressure the circulation of the blood, and consequently its more rapid transmission through the lungs to be oxygenated. His investigations he considers to establish—

1. That the muscles, besides being the active organs of locomotion, perform the important office of increasing the quantity of arterial as well as that of venous blood, within the cavities of the heart.

2. That the lungs regulate the supply of blood to the heart, so as to prevent congestion within the organ.

3. That the subcutaneous veins, performing the office of a reservoir, prevent the congestion of blood within the pulmonary vessels. This last office must be a highly efficient prophylactic of disease, in all persons who are endowed with such a constitution as that which the author has described under the general denomination of delicate health.

With Dr. Cruveilhier, we may regard the muscular system as a good hygeiometer or index of the general state of the individual; the muscular force of the heart giving us the measure of the state of the apparatuses of nutritive life; while the myotility of the general muscular system gives us the measure of the condition of the brain.

The kind and degree of exercise to be recommended, whether active or passive, must be adapted to the circumstances of the case—observing that such exercise shall be ordered, as will have a direct tendency to expand the chest; only we must take care, if, with the view to amuse the mind at the same time that we exercise the body, we have recommended any games or gymnastic exercises, that in a moment of unguarded eagerness, no undue straining of any part occur; for cases have been recorded, and are constantly occurring in delieate constitutions, where one single leap. tumble, or game at cricket, has been followed by severe hip disease, or some other joint affections.

Exercise should be so adapted, as to call many muscles into action, and not those of one part only of the human frame, even although that part be the chest:—the bull-neck and rounded back of the waterman would but ill grace the lady's figure, of "nature's fairest mould."

The medical man can and should regulate, according to circumstances, both the quantum of exercise to be taken, and the kind to be preferred. Thus, the dumb-bells, the Hindostanee clubs, battledore and shuttlecock with alternate hands, walking, dancing, skipping, callisthenics, gymnastics, boys' games, rowing, phonation, or exercise of the voice, may all be put in requisition, as active exercises, at one time or other; whilst equitation, riding in carriages, or chamber-horses, will suit those who can only bear exercise of a passive nature.

Many persons resort to watering-places to drink certain mineral waters—and much benefit is often derived by so doing; but a considerable, if not a major, part of that benefit must be referred to the exercise which is at the same time wisely enjoined. The author has been informed that the acquaintance of a friend of his received so much benefit from (as he thought) drinking some artificial Carlsbad waters, at Brighton, that he went to Carlsbad to try the pure natural spring itself. The waters there failed; and why? In the former instance he was directed to take certain walks "between his cups," while at Carlsbad this point was neglected.

In all these cases we must take into consideration, also, the wonderful influence of altered habits of life—early hours, early rising, early meals, less luxurious and overwhelming diet, and change of scene, and travelling. Let the invalid follow a similar course of life at home, and he shall not need to go abroad for health.

John Wesley, the celebrated preacher, died placidly and without pain, after a long life of eighty-eight years, and in the sixty-sixth year of his ministry. This longevity and freedom from disease were attributed to his manner of life. He rose early, and lay down at night with nothing to keep him waking or trouble him in sleep; he travelled on an average 4,500 miles every year, delivering two and frequently three or four sermons in a day; he was in perpetual locomotion, and very temperate in his diet—his personal expenses not exceeding £100 per annum; his mind was always in a pleasurable and wholesome state of activity. He says of himself, "I feel and grieve, but *fret* at nothing." A week or two before his death, he said, that "Time had shaken him by the hand, and death was not far behind." His brother Charles died in like manner, without any disease, and with powers worn out: "the weary springs of life stood still at last."—*Southey's Life of Wesley.*—Such is the euthanasia of the well-spent life.

In no single instance, perhaps, is nature more severely outraged than in the neglect of exercise, especially by some of that class of opulent persons, who, in the graphic words of Shakspeare, "have abundance, and enjoy it not,—with whom 'tis sweating labor to bear their idleness," and with whom "the day doth pass without a deed to crown it."

A highly artificial state of society has engendered such sedentary habits, that exercise becomes distasteful—with many persons it seems to have become impossible; but let no one delay to resist the insidious and luxurious foe—life and purpose destroying sloth; let him begin some daily muscular exercise, and continue it, so as to feel a sense just short of painful weariness, and the good effects—the pleasurable sensations resulting, will induce him to persevere.

It may be said of indolence, as it was formerly sung of spleen, which is one of the attendants of sloth—

> "To cure the mind's wrong bias, spleen,
> Some recommend the bowling-green—
> Some, hilly walks—all exercise;
> Fling but a stone, the giant dies."

As in the sedentary, and even under ordinary circumstances, the lungs are never inflated throughout, and thus, in some of the air-cells, the blood does not circulate so freely as it ought, nor undergo its fitting changes. It would be advisable that exercise of such a kind should now and then be taken, as would occasion full, and for a time, frequent inspirations; by which the utmost expansion of the thoracic parieties would be secured. This should be done, however, under proper surveillance.

Further good effects would result; for the accelerated circulation in the lungs and heart, causes a direct increased momentum of the current of blood, in the vena cava abdominalis and the venæ cavæ hepaticæ, &c. Thus, the bile would be more healthily secreted, and attain a freer flow. No better remedy for the dyspeptic or bilious can at times be found than a good long walk, or sharp ride, or game at tennis, billiards, &c. Invalids of this kind always feel better after such extraordinary and sustained muscular exertions. But there may be some unfortunate persons, who, from diseases or other causes, cannot take any exercise, either active or passive; still, much can be done, even under such circumstances, by champooing, or by percussing their joints and limbs, frequently and regularly, until some muscular tone shall have been recovered. In some cases of abdominal congestions and liver derangements, I have witnessed effects unexpectedly good, from a perseverance in diligent hand-rubbing, combined with gentle pressure, over the whole of the hypochondriac and abdominal regions.

The very air we breathe, or the food we take, are not more necessary to the well-being of the individual, than a judicious, steadily maintained system of muscular exercise.

"In sickness," says the illustrious Bacon, "respect health principally; and in health, action; for those that put their bodies to endure health, may, in most sicknesses which are not very sharp, be cured only with diet and tendering."

The increase of muscular power and improvement of the body are not only very great, but they are obtained in a short time; in proof of which assertions, I will extract from Mons. Bally, the following account:

"Un jeune homme de dix sept ans, qui se soutenait à peine à trois ans, et qui n'avait marché sans lisières qû' après la seconde

dentition, était resté d'une faiblesse et d'une maigreur extrémes. La poitrine etait resserrée et la respiration gênée par le rapprochement des épaules en devant, l'entendement obtus; rien n' annonçait la puberté. La pression des mains, au dynamomètre, egalait celle des enfans de sept à huit ans; les forces de traction, d'ascension et d'élan, étaient nulles. Cet infortuné tombait de lassitude aprés avoir fait cent pas en une minute deux secondes. Un poids de quinze livres le faisait chanceler et un enfant de sept ans le terrassait avec une incroyable facilité. Après cinq mois d' exercices dans le gymnase de M. Clias, sa force de pression était de cinquante livres; il s'elevait par les bras à trois pouces de terre et restait suspendu trois secondes; il sautait trois pieds en largeur, parcourait cent soixante trois pas en une minute, et portait trente cinq livres dans le même espace de temps. Au bout de deux ans, il grimpait au haut d'un mât de vingt pieds, sautait six pieds et faisait cinq cent pas en deux minutes et demie. Au moment où M. Clias ecrivait, il

faisait cinq lieues sans se gêner, et jouissait d' un embonpoint convenable et d'une forte santè."

This is an interesting account, and seems to prove, not merely that this young man strengthened a constitution naturally delicate, by exercise alone, but also, that he was probably thereby saved from a dangerous attack of consumption.

The warmth which muscular exercise excites all over the body and extremities, down to the very feet and fingers' ends, cannot be obtained by the application of mere external warmth. The temperature from exercise is raised in the most natural and salutary way—through that wonderful power in the human animal economy, by which man can maintain an equal temperature under extremes of heat and cold—under the tropical heats, or amidst the snows of Spitzbergen.

"Exercise has been divided," says Mr. Davies, in his Manual on Regimen, &c. "into the exercise of development—that of education—that of maintenance or utility—and that of a corrector or preventer of disease. The first serves for the evolution of every part of the human frame; and any observant person will find no difficulty in tracing the pernicious effects resulting from a neglect of it. To this neglect we may attribute much of the stunted growth, the spinal curvatures, and unhealthy state of many young girls, of the present day. The second consists in giving to the former the most proper and judicious direction for the production of certain effects—the full, free, and graceful use of the limbs—the senses and the organs of speech—the complete evolution of, and an easy and perfect command over, the intellectual faculties, so as to direct and encourage their application to any given object. By the third is meant that regulated and continued exercise, in which facility of action, skill or expertness, has its foundation. The fourth kind is of most surprising power, in removing disease or its effects, in counteracting deformities, &c."

In prescribing what system of exercise should be adopted, we must adapt it according to the various differences of each individual,—to the age, sex, character, strength, and peculiar disease. Finally,—"Exercise is serviceable in proportion to the number of muscles which are called into action; in proportion to the degree to which each muscle is contracted; in proportion to its duration; in proportion to the time of taking it—neither immediately before nor soon after eating; and in proportion to the regularity with which it is had recourse to."—*Robertson on Regimen.*

CHAPTER V.

DIET.

In the selection and apportioning of food, much judgment is necessary. No detailed rules of dietetics can be laid down, with success, unless the individual is under examination. We should recollect, however, this fact, that if the food be not supplied in sufficient quantity, or of sufficiently nutritive power, much mischief must result, especially to young persons in rapid growth: while, if too much food be taken, the stomach is overpowered; digestion is impaired; the food, instead of undergoing the processes of digestion and assimilation, excites a constitutional irritation, as a foreign body would do; exercise cannot be taken; the intellectual faculties become torpid; and many phenomena of disease follow.

We must adapt our dietary to the circumstances of each individual's age, sex, constitution, or idiosyncrasies. Much, in a remedial way, may be effected by a judicious regulation of diet.

We must constantly bear in mind that it is not the quantity of food eaten, but the quantity of it that is easily or properly digested, which is of consequence. "Non enim multitudo ciborum et deliciæ naturam debilem corroborant, sed modica quantitas viribus respondens et temperamento conveniens."

Some aliments nourish but little, says a modern French author; cause but little degesta, and produce a cooling or indirectly sedative effect. There are others, which afford little nourishment, but are not of a cooling nature; they cause the degesta to be liquid and abundant—seem to diminish the tonicity of the tissues, and relax them. Others, again, are of highly nutritive power; augment the energies, both physical and moral; and increase the power of maintaining the animal temperature. Some articles of diet would seem to have specific or special properties. Lastly, by a mixed diet we may produce mixed effects.

The physician, then, who thinks he has done all, when he has written a prescription for his patient, labours under a great mistake, and will do well to amend his practice: he will soon find that medicines, however judiciously ordered, may either be counteracted by an ill-chosen, or much assisted by a well-chosen diet. Many a case of indigestion might be treated successfully by diet alone—or, at all events, with the aid of very little medicine: not that the author doubts the powers of medicine (for he, in common with every one who has had to combat acute disease, is deeply indebted to it); but that he has seen the good effects of a closer attention to dietetics than he believes to be usual with the generality of practitioners.

"Effectivement la diète, quoique agent negatif, est souvent un des meilleurs moyens de remedier aux derangemens de la santé. Combien ne voit on pas de maladies lui céder, et céder à elle seule! C'est un remède universel, non seulement parceque la nature nous y oblige par l'inappètence mais encore parceque l'experience de tous les tems, de tous les lieux, en a prouvé l'efficacité. Ceux même qui ne croient pas à la puissance de notre art, ne peuvent nier l'excellence de la diète et s'y soumettent avec docilité."—*Dictionnaire de Matiere Medicale et de Therapeutique Generale, par les Drs. Merat et De Lens, tome* 2.

Nowhere shall we find a more apt illustration of the difference which exists between use and abuse, than we are constantly meeting with when investigating the various facts touching the diet of man; and these facts, at the same time, show that long continued errors in diet are material agents in abridging the average duration of life.

That life is sweet, and longevity desired by most men, is incontestable: equally so, perhaps, is the axiom that longevity and happiness are generally coincident.

"If there may be happiness without longevity, the converse is not possible: there cannot be longevity without happiness. Unless the state of the body be that of tolerable health, and the state of the mind that of enjoyment, long life is unattainable: these mental and physical conditions no longer existing nor capable of existing—the desire of life and the power of retaining it cease together. An advanced term of life and decrepitude are commonly conceived to be synonymous. The extension of life is vulgarly supposed to be the protraction of infirmity and suffering—that period which is characterised by a progressive diminution of the power of sensation, and a consequent and proportionate loss of the power of enjoyment—the "sans teeth, sans eyes, sans taste, sans everything." But this is so far from being true, that it is not within the compass of human power to protract, in any sensible degree, the period of old age, properly so called—that is, the stage of decrepitude. In this stage of existence, the physical changes that successively take place, clog, day by day, the vital machinery, until it can no longer play. In a space of time, fixed within narrow limits, the flame of life must necessarily expire—for the processes that feed it fail. But though, when fully come, the term of old age cannot be extended, the coming of the term may be postponed. To the preceding stage an indefinite number of years may be added. And this is a fact of the deepest interest to human nature."—*Dr. Southwood Smith.*

After the Creation, when the world was to be peopled by one man and woman, and when longevity was necessary for the advancement of the race itself, from barbarism into civilization and refinement, the ordinary age was 900 years and upwards; and many able writers, both Jewish and Christian, have urged that the simple nature of the food eaten by the antediluvians, and a climate more genial than anywhere prevails at present, were instrumental in producing this great longevity.

After the Deluge, the average of human life was cut shorter, and none of those patriarchs, except Shem, arrived at 500. In the second century, we find none who reached 240; and in the third, none but Terah who arrived at 200 years; the world, at least a part of it, being by that time so well peopled that they had built cities, and cantoned themselves into distinct nations. By degrees, as the number of people increased, their longevity diminished, until at length it came down to seventy or eighty years. Since the above period, the common duration of man's life has been the same in all ages.

Now, as this longevity has been made an appurtenance to our nature, the probability will always be, that by the use of proper means, which are within our power to supply, it may be acquired and enjoyed by a greater number of people than have hitherto experienced it. These means may be comprised within two classes—the one, tending to strengthen our conservative powers—the other, to avoid the causes of disease.

A well-regulated diet forms an important item in effecting both the one and the other; and we shall find that the few instances of longevity which occur, without any particular attention having been paid to food and habits, are exceptions to a general rule; and that, in general, bodily indulgence tends to shorten human life. Temperance and exercise are great preservatives of the human frame.

As to particular kinds of food, some have lived on one article of diet, some on other kinds; and there are most interesting records extant, of the wonderful adaptation of the stomach in this respect, both as to quantity and quality. Theory would require that the food for the human body should necessarily consist of nitrogen, hydrogen, carbon, and oxygen, and that nitrogen should certainly be one of the chief ultimate elements or components of all food destined for man; yet we shall find many persons whose constant food contains no nitrogen, and who enjoy good health, as well as very considerable strength.

Margaret Saher, aged 137, for many years subsisted mostly on milk. Cateby, a sailor, aged 116, lived for twenty years on milk and biscuit; his intellect was perfect till within two days of his death. Anne Frost, aged 111, lived on milk and tea diet for many years. Margaret Hunter, 104; her beverage was mostly water or milk. Judith

Banister, 108, for the last sixty years of her life, lived upon biscuit and apples, milk and water. Elizabeth M'Pherson, 117; her diet was buttermilk and greens. Anthony Loyde, aged 114, ate nothing but bread made of Turkey wheat, and abstained from wine and tobacco; he retained the perfect use of his senses—his hair and teeth were preserved to the last. Alexander M'Intosh, 112, lived entirely on vegetables for the last ten years. Joseph Ekins, 103, never suffered a week's illness; and for the last forty years subsisted on bread, milk, and vegetables.

Cornaro, at 78, increased his diet only a sixth part, and brought on disease, with much danger attached to it. He says, "If a man is willing to live long in the enjoyment of his food, let him live sparingly." He used to take 12 oz. of food daily—bread, soups, yolks of eggs, and meat—and 14 oz. of wine; he increased what he ate to 14 oz. and his drink to 16 oz.: his good temper left him, and febrile symptoms followed. He resumed his old allowance, and all was right again. At fourscore and three, he could mount a horse without help, could go down stairs, or descend a hill, and he was always merry and in good humour. He thus writes—"It is the will of our Creator that we should attain to a long life. He has appointed man to this, because in his old age he will be freed from the bitter fruits that were produced by sense, and may enjoy the good effects of his reason. He then bids farewell to his vices, is no longer a slave to the devil, and finds himself in a better condition to provide for the salvation of his soul."

Many other examples of longevity, as depending on temperance, might be cited.

Although plurality of food, that is, a mixed and varied diet, is the best adapted for nutrition, yet the way in which the stomach will convert into nutriment what is not considered sufficiently nutritious is astonishing.

Many nations in a savage state live almost entirely on fruits and roots—such as the yam, the beet, the potatoe, the bread-fruit tree, bread-nut, sweet chestnut, banana, the cabbage-tree, palm, and meal-bark.

The Hindoos subsist chiefly on rice and maize, and will not touch flesh of any kind. Many of the wandering or Nomadic moors live on gum-senega; and Hasselquist tells us, that in 1750, a caravan of above 1,000 Abyssinians, in consequence of having consumed all their provisions, are alleged to have subsisted for upwards of two months entirely on gum-arabic, which happened to be amongst their merchandise. This fact, if it be true, goes to prove that man can live on a single substance, which was found to be insufficient nourishment, even for dogs.

An instance occurred in Germany, in 1749, when a human being was found, who would eat nothing but grass, hay, or straw, for a whole year.

In the department of the Var, a man is now living, who having been at one period reduced to great want, was obliged to live on raw leaves of trees, herbs, &c., and he now prefers this diet, and adds only three or four ounces of bread and a little wine to his daily fare, with which he could easily dispense. He is well—his hearing is acute—and he never was affected by extreme cold.

Acorns are used for food in California; lupins were the common food of the Greeks; chestnuts and lupins, of the Sicilian peasantry; the modern Greeks use thistles and all sorts of weeds for food; crocus roots are eaten at Aleppo, and the iris bulbs at the Cape of Good Hope; chestnuts are eaten by the Portuguese, and berries in Terra del Fuego; the Enare Laplanders make soups of fir-bark, and they grind it into bread; the Arabs in Barbary live on wild figs and gourds, pumpkins, the mallow and daffodil, burrs, fern roots, the nettle, the dandelion, the sago, and palm. Many other vegetable productions have singly been found sufficient for human nourishment.

Nor is a great quantity requisite, even when laborious exertions are required to be supported. The Hindoo coolies travel far, and carry heavy baggage; and they live on one moderate meal a day, of rice and water.

Mr. Lander, when taken by the Eboes, was kept on a daily slave allowance of half a yam a day. The well-known Mr. Lockley, who lived past his 80th year, and then was accidentally killed by a fall from his horse, said, "He could ride more miles on bread and butter and strong green tea, than upon any other diet."

Dr. Franklin once worked hard as a pressman, and drank nothing but water; while his fellow-workmen said they could not do their work without drinking six pints of beer a day. He tried to convince them that there was more flour in a penny loaf than barley in a pint of beer, and that consequently, if he ate this loaf and drank a pint of water with it, he would derive more strength from it than from a pint of beer. If fatigue is to be well supported, we should avoid meat, wine and brandy.

Dr. Turner's experiments prove that the nutritive matter in seven or eight pints of ale, did not exceed that of a penny loaf.

Some animals, which from the anatomical structure of their digestive organs, are designed to live entirely either on vegetable or animal food, will subsist, as a matter of necessity, on what was not intended for them by nature, especially when the change is made in a gradual manner.

Thus, in Northern Asia, where grain is scarce, horses and oxen are sometimes fed on fish. Spallanzani habituated an eagle to live on bread, and a pigeon on flesh; and on the coast of Coromandel, they are fattened upon balls of boiled flesh, mixed with grain. It is on record, that a lamb kept on ship-board was fed on flesh until it refused the grass when afterwards turned into a meadow. If fresh-water mollusca are put at once into sea-water, or sea-water mollusca into fresh-water, they perish; but if the change be gradually made, they live very well.

Are not facts of this nature calculated to show that man has been so constituted as to be able to take advantage of the vast latent powers of nutrition, residing in the vegetable kingdom, for his use? And are they not calculated to remove all doubts as to redundancy of population and scarcity of food? May we not reject a certain celebrated theory, and its contradictory ratios of food and population? May we not confidently say that the natural supply of food, which is a question between human nature and Providence, will always be given, in some shape or other, in sufficient quantity to nourish the people permitted to live on the face of the earth?

Poverty and want may constantly be met with, it is true; but they are the topics of an individual question between man and man, or between each person and society, and not between mankind and Providence.—*See that excellent work, Sharon Turner's History of the World, vol. 3, passim.*

We may safely take it for granted that temperance is one very efficient agent in the promotion of longevity; and we may conversely add that the cook is the doctor's best friend. The medical man knows also that abstinence affords him one of his best auxiliaries, in many diseases; and can we wonder that it does so, when pathology shows us, that functional disturbance is caused most frequently by repletion, and that organic mischief, the product of inflammatory deposition, speedily follows? The Germans practise with success a treatment of this description, which they term hunger-cur—which means, pretty nearly, a total abstinence from food. One German doctor, during twenty-five years of practice, has never failed to cure intermittent fever, by literally and strictly starving his patients for three whole days. He allows a little water; and after the fast, accustoms them to food again gradually. Valsalva prescribes great abstinence in aneurisms of the great vessels.

The author remembers being present at a lecture given, in 1817, by the then celebrated Dr. James Gregory, of Edinburgh, in which he related an anecdote of a number of officers in India, who were taken prisoners, kept in a noisome dungeon, and fed on a very sparing allowance of rice and water. After some years' confinement, they returned to their regiments in good health and tolerable condition; they found but very few of their quondam brother officers alive, and still fewer in good health. The tiffins and luxurious meals of the latter had destroyed the major part of them. What will not abstinence more or less rapidly effect in all that class of diseases comprised under the head of Hypertrophy? Yet, where shall we find sufficient boldness and honesty in the doctor to propose, or sufficient fortitude in the patient to undergo, any such severity of treatment? Neque ulla res magis adjuvat laborantem, quam tempestiva abstinentia. "Nor is there anything more useful to an invalid than well-timed abstinence," says Celsus.

Our bodily life and nature can subsist on little, when accustomed to it. In the Philosophic Transactions of 1742, there is an account of a man who over-heated himself, drank excessively of cold water, fell asleep directly, and woke in a fever. He recovered; but lost all relish for food, and for eighteen years afterwards he took no other nourishment than pure water, with, every now and then, during a certain period of the year, a draught of clarified whey. During the whole of this time he continued in his employment, and enjoyed health and a certain portion of strength.

As gluttony and a desire to be perpetually eating may be acquired by habit, so may fasting. To what extent progressive habit might enable man to protract fasting, without inconvenience or disease, has never perhaps been fairly tried; but the appetite of hunger seems, from various cases, almost as capable of being triumphed over as other appetites, and the body of being nourished by a very trifling quantity of food, and many weeks, perhaps months, by water alone.

The advantages of extreme temperance having been sufficiently pointed out, the disadvantages of, and dangers from, repletion, become manifest; yet no one can deny, that in these days much more meat, and much more of everything, than will prove beneficial is eaten; nor that much mischief frequently results from too full a diet: and it is surprising, though too common a fact, that persons should persevere in over-eating and over-drinking, after they have once experienced the horrors of indigestion.

One would suppose that few would be of the opinion of ah opulent farmer who consulted the late Mr. Wadd. A serious illness had fallen upon him, principally from indulgence in home-brewed ale. Mr. Wadd told him that he would not live six months, if he did not discontinue the habit. "Is that your serious professional opinion?"—"I am certain of it." The farmer thought a few minutes; tears came into his eyes; he sighed heavily, and at last said, "I am sorry for it—very sorry—it's very hard; but I can't give up my ale."

Some of the instances cited have shown us what can be digested by the stomach, when healthy, or when it has not contracted any morbid tendency through the sedentary and luxurious habits of civilized life; but if it have—if daily loads, beyond its powers of endurance, have at length rendered it weak and irritable, the slightest article of food which disagrees will remain undigested, and like unto the crumpled rose-leaf on the couch of the Sybarite, which deprived him of rest, this mere trifle will stir up an universal disturbance in both mind and body, and plunge the luxurious *bon vivant* into the overwhelming horrors of indigestion.

The clever and eccentric author of Lacon tells us that there is not a little generalship and strategy required in the managing and marshalling of our pleasures, so that each shall not mutually encroach to the destruction of all. For pleasures are very voracious—too apt to worry one another; and each, like Aaron's serpent, to swallow up the rest. Thus, drinking will soon destroy the power, gaming the means, and sensuality the taste for other pleasures less seductive, but far more salubrious, and permanent as they are pure.

Taking meat only into consideration, the annual consumption of it, throughout the following several kingdoms, is—for each inhabitant in Spain, 22 lbs.; in France, 36 lbs.; in Paris, 86 lbs.; in Great Britain, 92 lbs.;

and in London, 143 lbs.!!!—*Virey Hygiene Philosophique.*

It is a curious fact that, in the two extreme portions of society, a flesh diet most prevails—the savage and the luxurious.

Were there annals of gluttony in existence, many a modern feat of voracity would be found to equal the far-famed exploits of the Romans in this respect, if not to surpass them. We read of Vitellius—of his gluttony and extravagance: "Sed vel præcipue luxuriæ, sævitiæque, deditus, epulas trifariam semper, interdum quadrifariam dispertiebat in jentacula, et prandia, et cænas commessationesque: facile omnibus sufficiens, vomitandi consuetudine." Many a modern parallel to this extravagant Imperial devourer, and his four daily meals, might be found, excepting as to the habit mentioned in the last member of the sentence. But men who act thus are sure to suffer an appropriate penalty, in the failure of their digestive powers, and in the curtailment of their natural term of life. "Such men seem, like moral incendiaries, so to ventilate the lamp of life as to fire every part of their microcosm with destructive inflammation; while others replenish it sparingly with the oil of temperance, and to them the flame burns steadily, and shines to the end."—*Forster.*

To increase the mischief, and hasten the downward course to destruction, sedentary habits preclude a recourse to the only measure which might in some degree counteract the evil effects. The measure the author alludes to is strong exercise in the *open air.* Our fox-hunting forefathers used to indulge somewhat freely in the pleasures of the table; but they were in the saddle from morning till night, and their ruddy cheeks, muscular frames, and long lives, attested the efficacy of the preservative.

It may not be unprofitable to mention the degrees of digestibility of various articles of food, which were ascertained by Dr. Beaumont, of Plattsburgh, United States, by watching a case of a wound, which exposed to view the interior of the stomach, and enabled him to experiment, by putting in or taking out whatever he chose. Some allowance must be made for the digestion having been more slowly performed in this case than is usual, on account of the wound interfering with the propelling power of the stomach. A Canadian voyageur, aged 18, was wounded, in 1822, by the discharge of a musket loaded with buckshot, and the stomach was laid open to a considerable extent, the ingesta passing out through the wound. In 1824 the wound had cicatrized, but had left an aperture two inches and a half in circumference, and the young man was then in good health and spirits. Dr. Beaumont made several experiments, and the results, touching digestibility, were such as follow:—

Farinacea.—Rice, boiled soft, was converted into chyme, in one hour; sago, in an hour and three quarters; tapioca and barley, in two hours; fresh bread, in three hours—stale, in two; sponge cake, in two hours and a half.

Vegetables.—Potatoes, roasted, in two hours and a half—boiled, in three hours and a half; carrots, boiled, in three hours and a quarter; cabbage, raw, in two hours and a half—boiled, in four hours; vinegar assisted its digestion; beet, three hours and three quarters.

Fruits.—Apples, sweet and ripe, in one hour and a half—mellow, in two hours—sour and hard, in two hours and fifty minutes; a mellow peach, in one hour and a half.

Fish and Shell-fish.—Trout, boiled or fried, one hour and a half; codfish, cured and boiled, in two hours; oysters, undressed, in two hours and fifty-five minutes—roasted, in three hours and a half; salmon, salted and boiled, four hours; flounders, fried, in three hours and a half; bass, boiled, in three hours.

Poultry.—Turkey, roasted, two hours and a half—boiled, five minutes more; wild goose, roasted, in two hours and a half; chickens, fricassied, in two hours and three quarters; domestic fowls, boiled or roast, in four hours; roasted tame ducks, in four hours—and, if wild, half an hour more.

Butchers' Meat, &c.—Soused tripe, pigs' feet, boiled or fried, in one hour; venison steak, broiled, in one hour and thirty-five minutes; liver, calves or lambs', in two hours; sucking pig, in two hours and a half; mutton, broiled or boiled, in three hours—roasted, a quarter more; beef, fresh, boiled or roasted, in three hours—lightly salted and boiled, thirty-six minutes more—old, hard and salted, in four hours and a quarter; pork steak, broiled, in three hours and a quarter—stewed, in three hours—lately salted and boiled, in four hours and a half—roasted, in five hours and a quarter; veal, boiled, in five hours and a quarter—fried, in half an hour more.

Eggs.—Raw, in two hours—roasted, in a quarter more—soft boiled, in three hours—hard boiled or fried, in three hours and a half.

Milk, in two hours; custard, baked, in two hours and three quarters; butter and cheese, in three hours and a half; apple dumplings, in three hours; suet, in four hours and a half; oil, somewhat longer; calf's foot jelly, in little more than half an hour.

Thus, venison is most easily digested of the meats; white fowl more than brown; beef than veal; boiled meat than meat dressed in any other way; and oily food is peculiarly indigestible.

Perhaps as good a table as any to guide the dyspeptic invalid, or those in delicate health, in their choice of food, &c. will be the one not long ago published by Dr. Robertson, whose little work is worth consulting; the articles are marked by numbers, and those which would be unsuited and prejudicial to the invalid are marked with a star:—

Meats.—1. Mutton; 2. Beef; *3. Lamb; *4. Veal; *5. Pork.

Poultry.—1. Fowl; 2. Turkey; *3. Duck; *4. Goose.

Game.—1. Hare, hunted; 2. Partridge; 3. Pheasant; 4. Venison; 5. Grouse; 6. Ptarmigan or black cock; 7. Hare; 8. Snipe, Woodcock.

Animal Principles.—1. Gravy, butter, broths, &c.; 2. Gelatin, jellies, &c.; 3. Fibrin; **4. Fatty matters.

Fish.—1. Whiting; 2. Haddock; 3. Cod; *4. Flounders and soles; *5. Lobsters and crabs; *6. Oysters, raw; **7. Trout and fresh water fish; **8. Turbot; **9. Eels, salmon; **10. Oysters, cooked; **11. Herrings and sprats.

Milk, &c.—1. Whey; 2. Milk, skimmed; 3. Milk, unskimmed; *4. Cream; *5. Curd; *6. Butter; *7. Cheese; **8. Cream-cheese.

Grain.—1. Wheat flour; 2. Rice; 3. Rye; 4. Oatmeal; 5. Barleymeal; 6. Peasmeal.

New wheaten bread, in which several of the products of fermentation are confined, is always to be avoided by the dyspeptic. White bread often exerts an astringent effect over the bowels; when the brown bread, which includes more or less of the bran in it, will prove better suited to such persons, provided there be no irritability of stomach or bowels. Rice is commonly of light digestion, and may agree with some delicate stomachs. All its principles seem to be absorbed in the intestinal canal; and this, perhaps, accounts for the character for producing constipation, which it has erroneously obtained. A rice regimen, from some experiments which have been made, would seem to be indicated in certain nephritic disorders wherein it is desirable to prevent, as much as possible, the introduction of azote into the animal economy. It should be prepared with aromatics, or it may be followed by considerable flatulence. It should never be boiled too long.

Herbs and Roots.—1. Asparagus; 2. Cauliflower (the heart); 3. French beans; 4. Potatoes, if mealy; 5. Spinach; *6. Turnips; *7. Broad Windsor beans; *8. Cabbage or greens; **9. Carrots; **10. Parsnips; **11. Peas.

Vegetables, uncooked.—1. Water-cress; 2. Mustard; 3. Cress; 4. Lettuce; 5. Celery; 6. Radish, if the acid rind is removed; *7. Onion; **8. Cucumber.

Fruits and Seeds.—1. Orange; 2. Strawberry; 3. Raspberry; 4. Pine-apple; 5. Grape; 6. Currant; 7. Gooseberry; 8. Peach, nectarine, apricot; 9. Apple, pear; *10. Cherry; *11. Plum; *12. Walnut, chestnut; *13. Hazel nut, filbert; **14. Melon.

Infusory Drinks.—1. Tea, drank nearly cold—very hot tea is a fertile source of indigestion; skimmed milk may be added; little or no sugar; 2. Coffee *3. Cocoa; **4. Chocolate.

Tea is a powerful promoter of digestion, and is gently stimulant to the stomach. We must avoid drinking it too hot, as well as drinking too much at a time, which would weaken by over-distending the stomach; the infusion must not be made too strong. It is well adapted for persons of plethoric habits—for those who are indolent, and will not take exercise—for those who eat a great deal, and who live on highly nutritious animalized diet. In China, it has been remarked that the inveterate tea drinkers are emaciated, feeble, of leaden complexions, and are subject to diabetes. Coffee is more stimulant than tea; and for six or eight hours after its ingestion, it seems to exert an anti-soporific influence. When drunk occasionally, it has acted as a laxative. It is best fitted for persons of lymphatic temperament—for the indolent mind, or the inactive body—and it may assist digestion in the debilitated stomach. It is counter-indicated, when the temperament is sanguine and bilious—when the mental faculties are exalted, or mind excitable—and during the presence of any diseases of irritation or inflammation. Chocolate often oppresses the stomach; it contains an oil which is difficult of assimilation. The Spaniards take it constantly; and as it should be regarded as food rather than drink, it may be of service where little animal food is eaten.—Cocoa contains less nutritive matter, and less oil, than chocolate; it is therefore less likely to disagree with the stomach.

Of the Condiments.—We may allow salt, sugar, and vinegar; but it would be well if all others—pepper, spices, pickles—were avoided, or but sparingly used; they excite a temporary stimulus, but an ultimate exhaustion; and are the occasion of more food being eaten than is needful, while an increasing zest for them becomes an imperious habit, until great quantities are daily consumed.

With respect to sugar, many invalids find it very prejudicial, and yet they are very unwilling to desist from its use. Most dyspeptics are troubled with acidity of the stomach and severe heartburn, after taking sugar at their breakfast and tea. The author would advise such persons to sweeten their tea or coffee with a syrup made of one pound of sugar and a pint of water, to be boiled, and the scum cleared off, which syrup would be less likely to disagree with them than either the refined lump, or the other sugar, in ordinary use. They will be able to ascertain the exact quantity of sweet which can be borne, without inconvenience, and the quantity once determined, can always be accurately measured out; this is not so with the unequal sized lumps of sugar, which lumps contain more impurities than would be readily imagined. He knows several instances where this plan has been tried with success.

Of Vinous and Spirituous Drinks.—It would be happy for mankind if they looked upon wines and spirits in no other point of view than as medicines or poisons.

Could any one see the immediate effects produced upon the coats of the stomach by ardent spirits, they would be avoided as one would flee from a pestilence. Ardent spirits, in the stomach, excite its mucous membrane, and produce congestion of its capillary vessels. If taken at meals, they interrupt digestion; and a habit of drinking them pretty speedily produces dyspepsia—and in the end, an atrophy of the liver. This atrophy is known to the profession by the name of gin-liver: it is, however, the product of drinking not only gin, but ardent spirits in general. Brandy, well diluted, is the best stimulus for the weak stomach, then Hollands, then whiskey, then rum.

Of Wines.—1. Sherry; 2. Madeira—this if free from acid, would rank high; 3. Port; 4. Champagne; 5. Claret, Burgundy; 6. Hock and German wines; 7. Sweet wines; 8. Ale (home brewed); 9. Porter; 10. Ale (brewers'); 11. Beer.

If wine makes life pleasanter, it renders it shorter. "Vinum facit vitam jucundiorem sed breviorem." And where the organs are already sufficiently active—as in infancy, in youth, and in early manhood—it must be prejudicial. Plato would not allow any person to taste wine, till after twenty-two years of age. But with elderly people, and under circumstances of exhaustion, a moderate use of it may be of great service. Pliny tells us that the Empress Livia attributed her eighty-two years to her wine of Pucinum.

Port, Sherry, and Madeira, seem best suited to English constitutions; and if taken in due moderation, and judiciously adapted to circumstances, they act as tonics, and assist digestion; they are not so rapidly absorbed as are the French wines—the Bourdeaux, the Burgundy, and Champagne; they consequently exert more local influence upon the stomach, and cause less excitement of the brain, than do the French wines. The latter possess less alcohol, in proportion, than do the former—and are hence more readily imbibed and carried into circulation, quickly exciting the kidneys. Sherry is a good wine, and has little acidity. The aroma and the slight acid of Madeira render it the wine for early life—for the young and the weak; the old and the robust should drink of it sparingly. Port contains gallic acid, and it is said to affect the liver, by inspissating the bile; hence it may do mischief, where there are any affections of the lower part of the intestinal canal. Champagne may be taken under certain restrictions; but if drank to excess, it produces a fearful state of congestion of blood in the brain—even so far as to justify the apprehension of extravasation. The author has heard those who had drank of it to intoxication complaining, the next morning, of an intense and persistent head-ache—for which, with other measures, he has been obliged to order repeated affusions of cold water over the head and temples. Champagne is not fitted for the gouty, nor for those troubled with formations of uric acid: it tends to increase the quantity of carbon in the blood. The wine-drinker should never drink ale or beer at his meals; he should not mix his liquors, as it is phrased. The three first stated wines do not require the counter-stimulus of coffee after them—the French wines do; and as coffee causes watchfulness with reaction, it is prejudicial. It also is said to act on the capillary vessels of the skin, and cause a harshness of the skin; ladies, more particularly, should avoid it.

General rules will not, of course, apply to idiosyncracies; neither will they apply to any other peculiarities of circumstances. The capacity and demand for food will vary much in different individuals, both as to quantity and quality. Still certain rules, founded on physiology and experience, have been laid down, and have been favorably received by the profession, which it will not be unacceptable to the reader to be informed of.

The anatomical conformation of man's masticatory and digestive organs forces on us the conclusion, and comparative anatomy forcibly corroborates that conclusion, that man is designed to be omnivorous; and that his most nourishing diet will consist of both animal and vegetable food. Broussonnet, from the relative number of canine and molar teeth, considers man to be more herbivorous than carnivorous, in the proportion of twenty to twelve; and he recommends a mixed diet, according to this ratio. This would be pushing theory too far; and the only practical rule worth attending to, in respect of this point, is this—that we should take less animal and more vegetable food in hot weather, in hot climates, or when under conditions of excitement, than under different circumstances.

Circumstances of climate, and of labour to be undergone, require corresponding modifications of diet. Those who advocate animal food tell us that Cæsar found the aborigines of Britain living on flesh and milk,—yet they were very strong and robust; but this fact may be accounted for, by their habits differing from those of their descendants. Those who deny the necessity of an intermixture of vegetable food may be convinced of their error by an appeal to history; for, in the 17th century, a scurvy raged and occasioned great mortality. Now, as the want of fresh vegetables is much concerned in the production of this disease, and as the art of gardening had then only just been introduced, we can readily believe that attacks of this complaint were general and frequent in those early times.

Under the rigours of a polar climate, the most fatty and oily food is necessary, as we see is the case with the Esquimaux; whilst under the burning heats of India, the Hindoo thrives upon food almost exclusively vegetable.

In irritable persons and sanguine temperaments, the diet should consist of soups, fish, vegetables, diluting drinks, &c.; while a more generous diet of red meats, &c. is required for those who are of weakly lymphatic constitutions. Fat and oily meats are objectionable; and vegetables should be eaten in moderation, as they are liable to undergo acetous fermentation in the stomach. Soups are often hurtful, unless bread or biscuit be eaten with them, so as to give them consistence. If fish be eaten, the best condiments are vinegar or lemon-juice; and malt liquor, fruit or milk should not be taken at the same meal with them. *Early* salmon often disagrees; eels are more digestible when stewed. Boiled fish is more easy of digestion than either broiled or fried, as a general rule. Of course quantity is a principal point to be attended to, at all times.

Meals should be taken at *regular intervals.* "Appetite in health is regulated by habit, and in disease it acts as an imperfect monitor." A sufficient time must be allowed for the conversion of the aliment into chyme, and for its further assimilation after it has passed from the stomach. Mischief must accrue from the introduction of fresh aliment into the stomach, while it is engaged in getting rid of what is still remaining within it; and when this process of digestion has begun, we see that appetite ceases, even although sufficient nourishment has not been taken. Nature indicates this fact very clearly; for, as Dr. Paris says, "It is a well-known fact, that if a person be interrupted at his meal, for a quarter of an hour, he finds, on resuming it, that his appetite is gone, although he may not have eaten half the quantity which he required. This probably arises from the food having entered upon those ulterior changes which are incompatible with the energy of the stomach."

We must not, however, forget that hunger may return at shorter intervals, in consequence of certain circumstances having accelerated the nutritive process; therefore the same interval will not suit every one, nor even the same person, at all times. The food generally remains about three hours in the stomach, but in some persons it is not out of the stomach until five or six hours have elapsed. We may place the interval at five or six hours; and there should be no eating between meals, unless inordinate craving or great exertion would seem to require some support.

The amount of food required varies with the individual, and with the exercise and activity of that individual; but every one will be able to guard himself against eating too much, if the food be eaten slowly; the first digestion should be in the mouth, by mastication.

Another excellent rule has been laid down, founded on the fact that the progress of digestion is more easily and completely performed when the stomach is in full and unimpaired possession of its nervous energy. The invalid, therefore, should never take his principal meal in a state of fatigue.

It has been proved by direct experiment, that digestion is better carried on during a state of rest, than when active exertions have been made immediately after meals. By rest, we do not mean sleep. During the completion of the first part of the digestive process, that is, chymification, sleep would not be prejudicial, provided the stomach were not too much distended. An hour, then, will be well expended in taking rest after a heavy meal; but when the ulterior stages of the process come on, there would seem to be a natural demand for activity.

Children, we observe to be so happily circumstanced with respect to digestion, that although they may have eaten a plentiful dinner, yet will they return, immediately afterwards, to play and exertions of the most active description.

A multiplicity of dishes must be avoided; one kind of meat only should be selected—but this may be varied from day to day, under certain restrictions.

Drinking before meals is highly prejudicial; and the quantity of drink to be taken during a meal must depend on the nature of the aliment to be ingested. If the stomach be filled with fluid or with a mass which is too liquid, the muscular powers of the stomach are excited, by the bulk, to contract and propel it too quickly out of the stomach, and before the necessary changes have been effected in it; and thus the solid matter diffused through a large quantity of fluid, cannot be so easily acted on by the gastric secretion. Drink, then, must be taken in proportion to the dryness of the food eaten: consequently, if the food be succulent, less drink, or none at all, will be requisite. Thus, animal food will demand for its digestion a larger quantity of drink than vegetable, and roasted than boiled meat.

Usually it is a good sign when a person requires little or no drink at his dinner; the quantities of soda or seltzer water, or of other fluids, which are often drunk at meals, are highly prejudicial, both by impeding digestion and by ultimately producing vascular plethora.

The best guide must be, after all, the directions of nature, which are conveyed through the sensations of the individual. The invalid should aim at making a good breakfast and dinner; and he should particularly avoid suppers altogether; but if he dine early, he may be allowed a very slender and unirritating meal, some time before retiring to rest.

Some three or four hours after dinner, and when the food has left the stomach, a demand for diluents will often arise. A moderate quantity may then be allowed—tea being preferable; but if it disagree, coffee should be next chosen, as in the order already mentioned. A liquid breakfast is also called for, in consequence, probably, of the loss of fluids, by perspiration, during the night, and of the acrimony in the secretions thence resulting; still, it is always advisable to make a good solid breakfast, if the appetite will allow it.

CHAPTER VI.

SLEEP AND REST.

Both mind and body require diurnal rest, for the healthy exercise of their functions. The fatigued muscle must recover itself—and the over-wrought mind would at length break down, if sleep did not enable it to cease for a time, from all activity and excitement. The quantum of either rest or sleep necessary for each individual must vary with the circumstances—some requiring much sleep,—others demanding but little.

The most complete repose of the functions affords the greatest refreshment. To secure this, both body and mind should have been exercised, during the day, just so far as to avoid painful fatigue or exhaustion; the state of the circulation in the head should not have been excited by deep study, intense thought, nor any stimulant, for some time previous to retiring to rest; late and copious suppers should be avoided; the head not kept too warm; the feet should be brought to a healthy temperature before getting into bed—(an occasional iodine foot bath will here be very serviceable and effectual); lastly, "the cares of the day should be put off with the clothes."

The bed-rooms should be spacious, well ventilated, without much furniture in them, —they should be of a moderate temperature, and not subject to any great diminution of it during the night; the bedsteads should have few hangings; the beds should not be constructed of fine feathers, nor of enervating down; they should be well aired every day, as well as the bed-clothes. All these stuffs greedily drink in or absorb the vapours that emanate from the human body, more especially during a state of repose. For this reason, those who wear flannel waistcoats should change them or throw them off, before getting into bed. To which may be added another reason, quite as cogent, if not more so, than the foregoing, namely—that flannel at night unduly stimulates the skin, and thus indirectly causes debility.

CHAPTER VII.

MENTAL AFFECTIONS.

That truly magnificent and distinguishing present of God to man, the human brain, requires for its healthy existence, a constant attention to those rules which physiology enjoins. The first condition of its healthy action, we may say with Dr. A. Combe, is a sound original constitution; the second is a due supply of properly oxygenated blood; the third is the regular exercise of its respective functions.

We need only say, with respect to the first condition, considered in a practical point of view, that hygienic precautionary means must be most vigilantly enforced, if there be not a sound constitution *ab ovo*—inasmuch as less will be sufficient to excite derangement of function in a brain so constituted, than in one of sounder congenital structure.

The brain, to maintain its healthy action, must be adequately supplied with duly oxygenated blood. If the arterial blood within the cranium is not sufficiently oxygenated, the mental functions will become impaired, or altogether cease; if it be over-oxygenated, the brain will be too much stimulated. Living in an impure air, breathing or living in ill-ventilated places, deficiency or total want of nourishing food, will all, in course of time, affect the blood in this way of under-oxygenation—producing langour, head-ache, hysteric and other nervous symptoms. A diet which is too nourishing or too abundant will also, like too poor or too scanty a diet, affect the blood through the stomach; and, by preventing the proper assimilation of the food, cause the transmission to the brain, of blood not sufficiently stimulating.

Under the third head, we have to take care that the brain be duly exercised; as also, on the other hand, that it shall not be over-tasked. The brain obeys the same laws as other organs of the body, so far as its peculiar exercise is concerned. If it is allowed to be inactive, the intellectual functions will suffer in proportion to the inactitivity, and act slowly and feebly. The bodily organs will also, after a time, be affected, and various phenomena of indigestion, hysteria, hypochondriasis, and other nervous ailments, will ere long manifest themselves. The *dolce far niente* existence has passed into a proverb with the luxurious Southron; but as applied either to mind or body, no more pernicious mode of life than such an one can be adopted—destructive equally and alike of both mind and body. It may at first be pleasant, but its consequences are destructive: "Il radice ha soave, il frutto amaro." Let every one resist the first temptation from this insidious foe, as he would strive against an overwhelming torrent.

As to the other extreme, the over-tasking of the brain, we are disposed to think that up to this time, no error is more frequently committed in the educating of children, than this, of demanding too much intellectual exertion from them. In the earlier years of life, nature is busily at work to build up, in strength and soundness, the various organs of the human body—leaving human intellect to the last—the Corinthian capital of life's column.

As far as the senses and perceptive powers can acquire information, the intellect is, during these earlier periods, in process of self-education; and this process can be carried on without detriment, and at the same time, as the bodily organs are acquiring stability; but if we go much beyond this, and exact from the immature brain what ought only to be expected from the maturer one—we shall certainly be both originators and witnesses of a break-down, which shall be doubly melancholy, from previous promises of intellectual brilliancy.

Rapid development of the organism invariably brings on premature dissolution: and premature mental attainments are frequently as destructive of life as a rapid growth. Philip Barettier was an instance of this latter fact. He was born in January, 1724. French was his mother tongue, with some words of high Dutch; but in consequence of his father insensibly talking Latin to him, it became as familiar to him as his native idiom—so that, without knowing the rules of grammar, he, at four years of age, talked French to his mother, Latin to his father, and high Dutch to the maid or neighbouring children, and all this without mixing or confounding the respective languages. In his fifth year, he acquired Greek in like manner; before he was six years of age, he entered upon Hebrew; at nine, he composed a dictionary of difficult Hebrew words, with philological observations. With these he intermixed the study of the Chaldaic, Syriac, and Arabic; and having in his possession, just at this time, a pair of globes, in eight or ten days he was able to solve all the problems on them. He afterwards studied medals, inscriptions, antiquities, metaphysics, and experimental philosophy. This blazing meteor of genius died in October, 1740, aged only 19 years, 8 months, and 10 days.—"The vulgar saying, 'He is too clever to live,' is founded upon observation. These early specimens of superior intellect are sometimes followed, as already stated, by a state of imbecility. Antiochus tells us that Hermogenes, who was a celebrated rhetorician at 14 years, was ignorant in the extreme at 24; and of him it was said, 'In pueritiâ senex, in senectute puer.'" *Dr. Millingen's Curiosities of Medical Experience.*

"At any time of life," says Dr. Andrew Combe, "disproportionate or excessive and continued mental exertion is hurtful; but, in infancy and early youth, when the structure of the brain is still immature and delicate, permanent mischief is more easily inflicted by injudicious treatment than at any other subsequent period." And it has accordingly occurred to the author, as a duty, to caution parents, proud of their children's precocious talents, that if they did not take great care in restraining from too much study—in using the curb rather than the spur—their children might lose their talents, and become imbeciles. Such instances are pretty generally known to have occurred. The brain, after inordinate activity, is deprived of the power of action, and it becomes incapable of exercising its functions.

If, in those who are of delicate constitution, of strumous habit, or who are predisposed to consumption, we see generally a high rate of intellect—and this is very remarkably the case—we ought only the more to guard against the evil results of over-stimulation.

Much beneficial training of the minds of children can be effected by directing their opening powers of observation—by teaching them to discriminate accurately—and by pleasantly, or by way of amusement, leading them from the knowledge of effects up to that of causes. Children will thus readily and rapidly acquire information; whereas, if they had been pinned down to learn, and parrot-like, to repeat abstract propositions of grammar, &c. they would appear the veriest dunces that ever disappointed a parent's hope. Of course the author is here only alluding to young children; for a time will come when a sugar-plum system must be abandoned, and the business of education entered on in a serious and rational manner, alone worthy of its vast importance.

We read of the celebrated philosophe-moraliste, Michel de Montaigne, who imparted to the French language an energy which it did not possess before, that he acquired a knowledge of the Latin by having a person to reside with him who spoke nothing else—and Montaigne, in this easy way, learned to speak it as a vernacular tongue, with tolerable freedom and fluency, at the age of six. Greek was also taught him as a sort of diversion. "Nous pelotions nos déclinaisons," says he; "à la maniere de ceux qui par certains jeux de tablier (échiquier) apprennent l'arithmetique et la géometrie." By means equally gentle and attractive, he was insensibly led to acquire some knowledge of science; and without forcing his inclination, or imposing the necessity of application, his habits were formed and his powers agreeably exercised. Many other persons could be enumerated who have, as children, to a certain extent, drank deep at the fountain of learning, while it seemed as if they were only slaking a thirst for amusement.

The system of teaching prevalent in schools has been hitherto such that but scanty regulations are provided for the well-being of the body—the cramming with learning and accomplishments being the chief if not the only object aimed at.

It is thus teachers fail of success. Their true policy lies in a regulated alternation of work and play. Who, that has ever been a hard student, has not known, after some hours of severe study, both the great relief which has been derived from a walk taken with a mind in repose, and the freshened energies with which he can again sit down to, and conquer the difficulties of, the very same study which before appeared nearly insurmountable. This, which appears to be going backward is, in reality, the best way to go forward. It is indeed "Reculer pour mieux sauter."

Bishop Berkeley, who nearly a century ago published some reflections on tar-water, in his magnificent philosophical work, entitled "Siris," thus writes of the students in his day: "Studious persons, also, pent up in narrow holes, breathing bad air, and stooping over their books, are much to be pitied. As they are deterred the free use of air and exercise, this (tar-water) I will venture to recommend as a succedaneum to both. Though it were to be wished that modern scholars would, like the ancients, meditate and converse more in walks and gardens and open air; which upon the whole would be perhaps no hindrance to their learning, and of great advantage to their health." There can be no doubt of the propriety of the latter recommendation; and the student who will take sufficient exercise in the pure open air, will not only not need tar-water, nor any other medicine, but will be able to study with double vigour and success.

By way of pendant to the observations of the writer in the olden time, the author will quote from an eloquent, talented, and modern writer, himself an eye-witness of the evils he describes, who thus informs us on this subject: "It is a melancholy thing, which none but those educated at a college can understand, to see the debilitated frames of the aspirants for academical honors; to mark the prime, the verdure, the glory, the life of life, wasted away in a *labor ineptiarum*, which brings no harvest, either to others or themselves."—*E. Bulwer.*

The medical man has but too frequent occasion to verify the accuracy of these observations; and it may require no great extent of practice to meet with cases of digestive functions nearly destroyed, of consumptions set up, or of minds overturned, which have originated in an over-vaulting ardour of learning during a college life. Most workmen look to their tools—only scholars neglect that instrument which they daily use, and by which they daily range over all the world—which by much study is consumed. "Soli Musarum mystæ tam negligentes sunt, ut instrumentum illud, quo mundum universum metiri solent, spiritum scilicet, penitus negligere videantur."

Let us hope, however, that the numerous and valuable works now published and extensively circulated, on physical education, will, by their judicious strictures on this part of it, be attended with a diminution, if not total suppression, of this pernicious system.

CHAPTER VIII.

SYMPTOMS.

If due attention have been paid to the foregoing hygienic precepts—if a wholesome climate, with its purer air, have been secured—if the secretions and excretions have been attended to—if the mind have been preserved in the happy medium between inactivity and over exertion—if daily muscular exercise have not been neglected—and if, above all, the skin have been maintained in a healthy state by proper clothing, by frictions, by cleanliness, and bathings or spongings with cold water or with iodine solution—we may venture to assert that in persons so treated, the tendency towards deposition of tubercles will be counteracted, or if already deposited, there is much probability that they will be prevented from assuming an active condition; or still further, that they may be even absorbed. By these means the delicate constitution may be strengthened throughout the very important periods of childhood, adolescence, and puberty; and disease, if it do occur, may be so successfully resisted as to prevent a fatal issue. Should, however, these precautions have been neglected—should some parents, equally ignorant and confident, repudiate good advice, and under the idea that children of delicate constitution should be hardened by free and fearless exposure, just the same as the stout and the vigorous, they will discover their error only to repent of, and mourn over, it as irretrievable. Some instances may be adduced where this system of hardening by exposure has been successful—where, too, there seemed to have existed some delicacy of constitution; but in such cases there has been more vigour than was apparent on the surface, and such children have been able to *resist* the bad effects of this system—like the Roman children, who at their birth were often recklessly exposed—they survived the exposure from their own inherent power; only the strong and healthy lived—the weakly died in and from the seasoning.

Tubercular consumption makes its attack in a very insidious manner: the boy or young man may be just shooting up into manly growth; he finds that on any little exertion, or even without exertion, there is a perceptible shortness or quickness of breathing, averaging from twenty-five to thirty inspirations in the minute, and that he cannot at any time fully inflate his lungs—a very slight dry cough, and perhaps a palpitation or accelerated circulation at the heart, attend. There will be languor or indisposition to exertion of any kind—the feet become cold—the skin is evidently not in a healthy state—the face not of a healthy colour, pallid in some parts, slightly bluish or livid in others—the stomach does not act as it should do—while the liver also does not seem healthily to perform its function, so much so, that medical men may suppose that the stomach and liver are the parts primarily, if not solely, affected. A striking instance of this mistake occurred, within the author's knowledge, some few years ago, in the case of a medical bookseller:—His patient had, before he visited him, been sent to Madeira, labouring under hœmoptysis and all the usual symptoms of unsoftened tubercles. He returned to England in an amended state of health, but ultimately succumbed under repeated attacks; yet one physician, a gentleman of considerable standing and eminence in the profession, but who was not a stethoscopist, gave his opinion, when first consulted, that the disease was an affection of the liver, and that the lungs were sound, and still maintained the opinion after the patient's death. No necroscopy was obtained; indeed, a *post mortem* examination was not considered necessary to ascertain the nature of the complaint—every symptom having manifestly indicated tubercular phthisis, to every medical gentleman who had been consulted, except the one here alluded to.

In the case of the female,—after a childhood full of anxiety to her observant parents, on account of the great delicacy of her health, as it is termed, she will now approach that critical period in her life, when the great change, menstruation, is to be expected. Symptoms, similar to those in the boy's case, occur; there are dyspnæa, on exertion, with quickened pulse; paleness of the skin and face—in the latter, alternating with flushes of heat; the appetite fails; the secretion of bile is probably defective, and in consequence a loaded state of the bowels is common; pains under the short ribs, about the hypochondriac flexures of the colon, are complained of; the girl becomes very thin; no menses appear, or else they are scanty in quantity, defective in colour.

Mons. Louis says, that the catamenia are suppressed, sooner or later. When phthisis continues less than a year, the suppression takes place about the middle of its course; but if it continues from one to three years, this event takes place in the last third of this time. When the course is slow and there is no fever, he says, he knows not to what cause to attribute this suppression; when fever occurs, he finds a cause, in the suppression of secretions which is then common; but if, in this disease, there exist a diminution of energy in the organic nerves, and a carbonized blood, we surely have causes sufficient to account for the amenorrhœa.

If we now auscult the patient, we shall probably (for we do not always) find that percussion on the spaces, corresponding with the upper lobes of the lungs, will elicit, at some particular point, a dull sound, very different from the healthy one; and that an indistinctness of respiration, with perhaps bronchial respiration, or bronchophony, will there exist; while on the opposite corresponding point, which should be examined directly afterwards, the respiratory murmur will be very distinct—perhaps puerile.

The author is disposed to rely upon the truth of the remark made by Mons. Louis, with respect to the expiration, at this stage of unsoftened tubercle. He tells us, that in health the expiration is scarcely if at all sensible, and never seems to occupy the seat of the inspiration; but seems to be at a distance from the surface, as if in the larger bronchi. But when the density of the lung is increased, the expiration becomes gradually more and more distinct and superficial, till it resembles a second inspiration; frequently is alone heard; and might, without much care, be mistaken for the inspiratory murmur. This change of the expiration precedes that of the inspiration, and is therefore very important, because applicable to the early periods of the disease, when it could not be detected either by percussion or by modified inspiration. When the tubercular deposition exists to some considerable extent, there will not only be dullness on percussion, but the voice will give a loud sound at the part, and there will be a thrill conveyed to the hand when the patient speaks.

In many instances of this disease, however, little reliance can be placed on the stethoscope—for death has arrived, and all the stages of this complaint have been repeatedly run through, without any other stethoscopic signs than those of simple chronic bronchitis, although the usual rational symptoms have not permitted a doubt to be entertained as to the nature of the disorder.

Mons. Louis tells us that of 114 persons affected with phthisis, in whom the duration of the malady had been ascertained as exactly as possible, a little more than one-fifth died between the first and sixth month of the affection; two-sixths between the sixth and twelfth month; a little less than one-fourth between the first and second years; and a little less than one-fifth between the second and twentieth.

Thus the person may remain in this state, for a period of very variable duration; and if proper remedial means be resorted to, the progress of the disease may be, for a time, altogether stopped; on the other hand, the dyspnœa may rapidly increase—the healthy lung may be more and more encroached upon, and bronchophony more sensible to the ear—head-ache supervene, to a distressing extent—the lips and face become more livid—the cough more violent and incessant—slight hœmoptysis occur—and just as hectic fever is setting in, the patient die, as it were, asphyxiated, without any purulent expectoration, but with a clear mucilaginous fluid having been raised by the cough.

Some medical men (in good practice too) seem to rate the danger only in proportion to the purulent and tuberculous expectoration, and watch most anxiously for the setting in of such an expectoration,—having no fears till that occur; whereas, in some cases of infiltration, no such expectoration occurs; and when once tubercles have assumed an irritative action, there can be no safety—no chance of recovery—till the whole of the tuberculous matter has made its way through the air passages, and been completely ~~evaporated~~ evacuated, or until the remedies here recommended shall have resolved the congestion and morbid irritation.

We may, then, be tolerably confident in our diagnosis of unsoftened tubercles, when there are dry cough and dyspnæa of considerable duration, *without apparent cause*—alteration or indistinctness of the respiratory murmur, with a dull sound somewhere in the regions over the upper pulmonic lobes, the lungs everywhere else appearing to be sound—a clear mucilaginous expectoration, or else none at all—loss of appetite—emaciation—cold feet—with paleness of face and skin. The approach or existence of phthisis will be corroborated, if there have been one or two attacks of hœmoptysis, though hœmoptysis is by no means an essential symptom.

Mons. Louis says that hœmoptysis occurred in fifty-seven out of eighty-seven of his cases; and in twenty-five of the fifty-seven the hæmorrhage was violent. In twelve of the fifty-seven it preceded the cough and expectoration. It is more frequent in the male than the female sex, in the proportion of three to two; and there is no reason to conclude that it is vicarious of the catamenia—indeed, facts seem to lead· to a contrary conclusion. It rarely recurs more than four times in the course of the disease; and in the last stage it discolours the sputa, so as to give them the appearance of a sanious discharge.

If the disease go on unchecked, congestion of vessels and deposition of fluids take place around the tubercular deposit; and this deposition of fluids may merely surround the tubercles, without extending far over the circumjacent healthy structure; but, if mismanaged, high febrile action sets in, the fluid is widely deposited over the lungs, large vomicæ are formed, and very extensive disorganization ensues.

The congestion which exists in delicate health is venous. It consists in a sluggish state of the circulation, in the least moveable parts of the lungs, and is merely a predisponent to disease, although it will give rise to symptoms of threatening aspect—such as quickness of pulse, tightness at chest, or dyspnæa, and loss of flesh—the liver is also in a similar congested state;

but the congestion which takes place around a mass of tubercles on the point of softening is inflammatory, and must be dispersed as quickly as possible. The one state requiring for its removal, remedies directly opposite to those which are suitable for the other. Hence the failure of low diet and antiphlogistic treatment in averting dangers of the former kind; the pathological peculiarities of which consist in a depression of vital power in persons outgrowing their strength (as it is not unaptly phrased), and in constitutions marked by general debility. The arrest of nutrition, or loss of flesh is a very early attendant, and probably depends, in the early periods, on this state of the blood and nerves; for often no change of structure is to be detected that would account for it.

A pyrexial state, sometimes closely simulating ague by its daily morning chills and following febrile paroxysms, is now to be observed, in addition to the signs of thoracic mischief: the tongue at first is white, and at times furred, but afterwards it is often intensely red—the voice perhaps shrill, raucous, grave, or nearly suppressed—the pulse becomes very characteristic, ranging as to frequency from 100 to 120 and 130, and, to the touch, appearing somewhat hard, yet not full; but as soon as the congestion has yielded, or soon after the expectoration of tuberculous matter has set in, the pulse will be found to retain its quickness, but it will convey an impression as if the fluid fluctuated under the finger, and as if the artery were coatless—affording decided proof of impaired energy of the supplying organic nerves. Nightly-sweats, with severe exacerbations of cough, pain, and fever, proclaim the access of hectic fever, and also in most instances the softening of the tubercles.

The expectoration of frothy transparent saliva, less stringy and tenacious than the excretion in cases of catarrh, and more frothy though less tenacious than the sputum in stomach-cough, is soon succeeded by specks or striæ of matter, of a *fawn* colour, which if not entangled in mucus, will sink in water—and these specks will often assume a cupped form, which with the color is very pathognomonic. There will, for a time, be an admixture of muco-purulent matter, of varied color and consistence; or it may be dotted or streaked with blood. The stethoscope may now detect, in addition to bronchial respiration and bronchophony, a click or ringing sound in the breathing, which is, ere long, developed into full cavernous respiration and pectoriloquy, or amphoric resonance; and the patient cannot lie on the pectoriloquous side without an immediate increase of coughing or pain.

The hectic exacerbations occur daily at noon and evening; the pulse becomes more frequent; the skin hotter, particularly in the hands and face,—this heat subsiding in the evening in partial sweats, particularly on the forehead; the urine is at times high colored, at others pale. The flush on the cheeks is characteristic; in most cases, this flush is marked out distinctly and abruptly on the skin,—but in some, the red will be of a bright scarlet hue, while in others, and those the very worst cases (probably where general infiltration occurs), the red is very dusky and dark, clearly indicating the imperfect decarbonization of the blood, and affording us a measure of the danger arising out of the intensity of the disease.

A colliquative and exhausting diarrhœa, alternates with drenching perspirations; emaciation increases to a frightful extent; the age of fifteen seems to change to that of seventy; the legs swell; the respiration becomes more and more abdominal; delirium, with tracheal rattle, may ensue; and the expectoration of dirty ash-colored or rusty-colored darkish fœtid matter; aphthæ in the mouth; with the appearances of the face called in the aggregate, *facies hippocratica,* announce the approach of death.

Where delirium has existed, we may observe, in some cases, a sudden return to reason some few hours before death—presenting to us another instance of that extraordinary lighting up of life's flame, before it is to cease for ever. Does this state originate in the exhaustion of nature's powers, which is destined to prove fatal, and which has caused a remission of morbid symptoms, from mere inability to sustain the excitement of disease? The sinking seems to have annihilated the morbid action. However this may be, the young practitioner must be on his guard, not only in the disease here under discussion, but also in others; for he will lose in character if he give a wrong prognosis, and attribute to a yielding of disease what is in reality a fatal sinking of the powers of life. So long as *one* symptom of any disease remain, more especially if that remaining symptom be pathognomonic, or pertain to any of the vital functions, let him pause, as Sir Henry Halford has judiciously instructed us all to do, before he decides on his prognosis. Many a practitioner has erred in deciding too favorably.

If, however, on the contrary, the tubercular deposit have not taken place to a very great extent,—and if, either from peculiarity of constitution, there have not been much effusion around the tubercles, or if judicious measures have in some degree prevented it,—the fever, disorganization, and exhaustion will be reduced in a salutary proportion. The expectoration of light brown and cupped sputa will persist—a certain quantity, which after a time diminishes daily, will continue to be thrown up; the pulse lose its frequency; the hectic symptoms diminish in intensity—the cough in violence, being only troublesome in the morning; the appetite will return; and every symptom at length cease,—leaving the person subject, as before the attack, to dyspnæa on exertion, and dependant on a full and steady enforcement of prophylactic means, for an immunity from further and future attacks; and as each attack increases the danger to life, so that at length the hope of even a mere prolongation of existence, on the lowest scale, must be abandoned, these prophylactic means now constitute the sole hope of the sufferer; and claim the most vigilant care—the most anxious attention.

This disorder makes its attack in various other ways, besides the one just described. In some cases we observe a slight cough, with specks or streaks of blood in the expectoration; in others, the hœmoptysis exists in a most alarming degree. In 1834, a young man who had lived at the distance of twenty miles applied to the author for advice, when labouring under the following symptoms: a cough, violent once only in the twenty-four hours; the sputum was not tinged with blood, though it had been—and there had been one attack of hœmoptysis, in some quantity; there was tuberculous matter in the expectoration, but not much, and it smelt, and the patient said it tasted very fœtid; gargouillement; his face and skin, indicating a strong disposition to struma, were pallid, the lips livid; and the only febrile symptom, or affection of the circulation, when the author saw him, was the quick pulse, so highly characteristic of phthisis. It is in such cases we have to dread a suddenly fatal hæmorrhage—for large vessels are often opened by ulcerative gangrenous or esthiomenic action, without a coagulum having been previously formed in them. The prognosis was indeed a gloomy one. The writer was sent for the morning after he had prescribed for him, and found him in *articulo mortis*, with a vessel half full of florid blood by the bed-side.

We shall meet with other persons whose highly florid though fair complexions seem to bear evidence to their healthy state, and who do not present any sign of ill health, or of pulmonary mischief, till after exposure to some apparently trifling exciting cause. Cough, expectoration, hectic fever, and all the symptoms of phthisis pulmonalis, then make their appearance, and hasten rapidly on to a fatal termination, with hardly a single remission of them. "In these cases of what may be termed galloping consumption, the phases of the disease so quickly succeed each other, that the vital energies appear to be at once overpowered. From the first open establishment and manifestation of the mischief, its progress is sure, speedy and appalling." The progress varying in duration, according to Andral, from thirty to fifty days; or to Louis, from twenty-four to eighty.

Many instances of these acute and rapid attacks may be met with, wherein there shall be no expectoration whatever, but an urgent dyspnæa, with the ordinary quick pulse, and a severe head-ache shall be almost the only symptoms to be observed—the dyspnæa increasing rapidly unto the extinction of life. The scalpel shows that the deposition, or rather the infiltration, of tubercles, has extended pretty nearly over the whole of the respiratory organs. The occurrence of such cases may, in all probability, be prevented; but when they have occurred, they mostly bid defiance to all our remedial means. The age which is principally threatened with such acute attacks extends from that of sixteen to twenty-two, and the invasion of the disease is very sudden; the patient often having been in his ordinary state of health until a very short time before the disease occurs.

Sometimes, instead of a suppression of the catamenia being the precursor or attendant of phthisis, we shall meet with many females who have for a length of time laboured under menorrhagic attacks, or whose prolonged menstruation has allowed barely an interval of ten days or a fortnight between the periods. Their health becomes more and more undermined, until at length tubercles are deposited, and run through a rapidly fatal course.

In others, the pathognomonic symptoms do not make their appearance until after the termination of attacks of pneumonia, or bronchitis, of inflammation of larynx, or trachea, of catarrh, of measles, scarlatina, of fevers, or of any whatever acute disease, which may have left the constitution in a debilitated state. Then, when the inflammatory action or the disease seems to have been subdued—when the medical attendant is in full expectation of a daily amendment in his patient, he shall find that cough remains, or first makes its appearance, and creeps on in daily marked increase—that emaciation continues—and hectic phenomena are set up. Streaks, flocculi, or points of tubercular matter, changing after a time into globular or cupped light brown masses, are expectorated—the invaluable stethoscope brings its most important aid—and tubercular phthisis becomes manifest.

Such, then, is a concise summary of the history of this disease, usually so destructive of human life; and which ordinarily selects for its victims those who are "in the very morn and liquid dew of youth." Truly may we exclaim with Sturm,—"How many a noble youth, formed in nature's fairest mould, just as his virtues are beginning to open, and his mind to beam, thus bows beneath the pale messenger! How many of the softer sex, with charms sweet as the opening morn, whose attractive graces entwine the heart, live but to shew the beauty of nature, and then, as if too refined for this sphere, thus, wing their flight to purer regions."

CHAPTER IX.

DIAGNOSIS.

The importance of both an early and accurate diagnosis of this complaint, either as regards its mere threatening or its actual on-coming, cannot be over-rated; and fortunately, although some difficulties in the way of correct conclusions do most assuredly exist, yet, by the experienced practitioner and stethoscopist, these difficulties may be overcome, and sources of fallacy avoided.

It is in forming a diagnosis that the great superiority of an experienced and talented practitioner is made manifest. The studies of the closet will not here avail: the knowledge of disease derived from the bed-side will alone serve us. And to this knowledge must be added, great acuteness of observation, so that no cognizable phenomenon escape notice; and extensive acquaintance with the physiology and pathology of the human body, so that we may consider, at one view, all its functional connections and morbid relations.

"There must be a readiness in perceiving the relations which connect facts and observations, which to others appear not merely isolated but absolutely contradictory;" while the laws of evidence and of investigation must ever be the guides. Hippocrates has written, "Ιατρὸς φιλόσοφος ἰσόθεος." And this heathen dictum shadows forth the numerous qualifications which, in the opinion of the most eminent and sagacious practical man of his day, are requisite to form the accomplished physician.

Practitioners may occasionally be encountered, who can solve any difficulty that might occur, and can give half-a-dozen theoretical modes of treating any series or assemblage of symptoms, on paper; but who, at the bed-side, fail in one essential particular—they cannot perceive many signs which readily strike the experienced eye. Most extraordinary mistakes in diagnosis thus occur; and if an early diagnosis were not of the utmost importance, such errors might not be of vital consequence. But the reverse is the fact; and the chances of success will be strictly in proportion with the earliness of the period at which we first learn to know, and commence our treatment of, this formidable disease.

In the early periods we must first ascertain that the dyspnæa, livid face, dry cough, or else the frothy sputum streaked or dotted with blood, do not depend upon cardiac disease solely; and then we must take care not to mistake for this disease that affection of the bronchial mucous membrane called dry catarrh. In both diseases there are wasting of body, a dry cough, dyspnæa, and oppression; and these two last symptoms are exacerbated on exertion, such as running, ascending any elevation, and sometimes after meals. In both, too, these signs may remain in a latent or unchanging state for a long time, even for several years.

The oppression about the sternum and præcordia in these cases of catarrh, is also an unfailing attendant in consumption; and I doubt not but that it is connected with, if not caused by, the too carbonaceous state of the blood in this disorder.

Before the days when the light of the stethoscope was thrown upon our paths of practice, there is little doubt that these catarrhs were mistaken for tubercular consumption; but now, we can discover that percussion of the chest returns a healthy sound; and that although the respiratory murmur is, in severe cases, nearly inaudible at certain points for a time, yet it is still in most cases quite distinct; and that a slight clicking may occasionally be detected upon coughing or upon a deep inspiration. After a time the cough increases; but with judicious treatment the disease is gradually resolved, or it would have been followed by emphysema of the lungs. The various coughs, called nervous coughs (arising from hysteria, disease of the brain, &c.), stomach or liver coughs—those caused by elongated uvula, pharyngeal, laryngeal, or tracheal irritation—will, for the most part, readily be diagnosticated, by the general signs as well as by the negative results, in respect of the lungs, afforded by the stethoscope.

The existence of ague must be verified by auscultation, on the principle of exclusion.

Chronic or senile bronchitis may be mistaken for phthisis in its latter stages, when vomicæ have formed; the opake, yellowish or dirty green, pelletty sputa of bronchitis being not altogether unlike the tuberculous matter; but in complicated bronchitis, the history of the disease will inform us that the lower lobes were first or simultaneously affected; and also, that there has been a mucous wheeze, together with considerable distinctness of the respiratory murmur from the beginning.

The signs of extensively dilated bronchi may resemble those of phthisis—a gurgling noise, cavernous respiration or pectoriloquy attend both diseases; but dilatation of the bronchi is far from being common. "The chest, it is said, is more sonorous on percussion than in phthisis; and such dilatations are usually met with in the scapular, mammary, and lateral regions; while the subclavian and acromian are the more usual seats of phthisical signs."—*Dr. J. B. Williams.*

The young practitioner must be on his guard against a species of hœmoptysis dependant on hysteria. Much groundless alarm has been excited in the minds of friends, as well as of medical attendants, by cases of this description,—for a great many of the alarming symptoms in phthisis would at times seem to be present; yet the whole of the phenomena shall depend on this very singular state of the nervous system. The diagnosis will hinge principally upon the state of the pulse, and the presence or precedence of other hysterical indications; the quick pulse, peculiar to phthisis, will not be present: and this is a pretty sure guide, nearly alone pathognomonic. Sometimes, with this hysterial hœmoptysis, may be combined a suppression of the menses, of perhaps a month or two's duration; and this circumstance adds to the difficulty in the diagnosis, since amenorrhea is very frequently one of the earliest symptoms of phthisis.

A quotidian intermittent or remittent, with a collection of pus in the fauces, it is said, might be mistaken for the hectic in the advanced stages of phthisis; but the stethoscope will enable us easily and correctly to discriminate.

The rational symptoms—the face, form, and outward appearances of the phthisical, usually tell a tale that an experienced eye can at once readily read, without the aid of the stethoscope.

CHAPTER X.

TREATMENT.

From the preceding observations, it may be collected, what means must be adopted with a view to strengthen the constitution of a person who is in delicate health; and that those means are directed towards inducing a healthy state of every organ, by promoting the due performance of every function in the human body. The prominent tendencies in the weak or invalid constitution, seem to consist in, or to produce, an imperfect action or debility of the capillary system—a torpor of the cutaneous functions—internal congestions (venous)—and an arterial blood not sufficiently decarbonized. These states or conditions of the human animal economy, if suffered to remain unchecked, would soon lead on to disease, most serious as to character, most threatening to life, and very intractable as to treatment. The necessity, then, of the *obsta principiis* rule of action is obvious; yet how many instances do we not unfortunately see, in all classes of persons, wherein signs of on-coming mischief, most obvious to the medical man (if he had been timely consulted) have been neglected, under the impression that medical treatment was not called for, so early.

In these days, both rich and poor can obtain assistance, early and valuable, and partly valuable because early—for if the former can help themselves by their pecuniary resources, the latter have every facility afforded them of resorting to a well-attended hospital or dispensary. I write thus, and am disposed strenuously to insist on attention being paid to what may be called premonitory states or signs, because I have had repeatedly to lament over the inefficacy of professional treatment, in cases where, had timely assistance been obtained, the result would have been widely different.

If parents ask, must we, on every little cough or stoppage of action, run to the doctor? I must, with all persons hereditarily predisposed to disease, conscientiously answer in the affirmative; for these patients cannot tell whether such cough may not be the commencement of ultimate danger to life. If the symptoms are of no consequence, doctor's aid may speedily be dispensed with, little expense incurred, and in the instance of a poor person none at all; if the reverse, what may be the consequence? Death. It must be remembered that I am not advocating the necessity of all this precaution in persons who are of strong and vigorous constitutions. No; it is for the weak and delicate—those predisposed to disease—that such minute and unremitting attentions are requisite.

"Sanus homo, qui bene valet, et suæ spontis est, nullis obligare se legibus debet, ac neque medico neque, iatralipta egere. At imbecillis, quo in numero magna pars *urbanorum*, omnesque pœne cupidi literarum sunt, observatio major necessaria est: ut

quod vel corporis, vel loci, vel studii ratio detrahit, cura restituat." The man who is free from disease, and vigorous in all his functions, ought not, provided he is his own master, to restrict himself to regimen, or to require the physician or the unction-doctor. But for the delicate, in which class may be enumerated the majority of persons living in large towns, and almost all literary characters, stricter precaution is necessary, in order that they may gain by vigilance what they lose from the very nature of their constitutions, places of abode, and occupation.—*Celsus.*

It may be objected, that the treatment here recommended will cause persons so treated to become like exotics in the vegetable world, to which every rough breeze may prove fatal; but the answer is, are not these persons like exotics from their very birth? And further, it may be alleged that if a proper system of hygiene be followed, the time may come, when unusual precautions may be abandoned, and they may live as others do. I hope I am not foolishly trusting to a confidence, inspired by many years of assiduous professional experience, when I say that, humanly speaking, I should little fear a want of success, in bringing up to maturity, under this system of minute precaution, many a bright and engaging specimen of youth, otherwise doomed to premature death.

I have asserted my belief that an unusual quantity of carbon in the blood is one of the leading or most important concomitants of ill health—of struma, or of tubercles; but whether this opinion be founded in fact or not, it is certain that the most successful means of treating such deviations from health, are those which may fairly be supposed to act directly or indirectly by decarbonizing the blood: so that the practice is quite independent, yet corroborative, of the theory. But if the hypothesis be correct, it is easy to estimate how general and how highly sedative or depriment of healthy vigour must be the influence of too much carbon in the blood, circulating as it must do by means of the vessels through every organ and part of the human body—three complete circulations of the blood through the body taking place in every eight minutes of time. This once conceded, it will be readily allowed, that if we can effect a healthy change in the blood, it will react, in its turn, on the organic nerves, and stimulate them into a more vigorous action: in the same way as the organic abdominal nerves and spinal marrow can be powerfully acted on, by certain applications to the inner surface of the colon and rectum; which surface is supplied with nervous influence by those nerves upon which, by a reflex or retrograde influence, we propose to act.

With respect to tubercles, the suspicion may not altogether be devoid of foundation, (though, like many other conjectures relative to physiological or pathological peculiarities, it may be above the reach of direct proof), that a sluggish, highly carbonized blood, forms also the nidus for tubercular deposit; while the organic nerves, no longer in healthy action, lose their ordinary powers of analysis, and cause the secretion or separation of tubercular matter from the blood. To Dr. W. R. Clanny I feel under considerable obligations, for his (to me) highly interesting experiments published about six years ago, on free carbon in the blood, in various diseases, and, amongst others, in phthisis. They afforded a corroboration of opinions, now for more than eighteen years floating in my mind. But, again: whatever may be the theory, the question which arises is this,—is success to be expected from the practice which I have here recommended, and which is partly based upon such opinions? I think I may *point to facts,* and confidently assert, that it may be attained.

One cannot but be aware of the danger which now exists, of overrating the influence of remedies in phthisis. Since the time when Laennec discovered the cicatrization, or fibro-cartilaginous lining of cavities left by vomicæ: and when he, in prophetic, as well as strictly philosophical spirit, boldly announced the future curability of consumption, many persons (some, perchance, with motives not altogether above suspicion) have raised a cuckoo-note, and proclaimed themselves consumption-curers, even in advanced stages of the disease;—with stethoscope in hand, they profess that they can watch, and accurately tell, to what extent each cavity fills up, from day to day. With such persons, the faithful inquirer cannot coincide. For although we may effect a great deal of good in the early stages; and although we occasionally meet with extraordinary instances of suspension of morbid action in the more advanced periods; yet in these latter, when disorganization has ensued to a considerable extent, the medical practitioner can do little or nothing as to cure, though he can help much as to palliation.

Under the head of prevention, some observations become necessary on the treatment of some of the disorders which often lead to, and act as the exciting causes of, tubercular consumption—measles, bronchitis, scarlatina, fevers, &c. In this point of view, measles, in a strumous habit, become especially dangerous; and that danger is sometimes increased by injudicious medical treatment. Inflammation in the scrophulous constitution does not bear abstraction of blood so well, and does not require so much of it, as in other constitutions; with considerable irritability, and what would seem to be high action, there is ever a great tendency to debility—to sudden exhaustion even—consequently, blood-letting is badly tolerated.

The first link in the chain of inflammation must be diseased or altered action of the organic nerves of the part; the second, increased or morbid action of the blood vessels; but after Dr. Parry wrote on pathology, the increased impulse of the circulation seemed alone to be regarded (chiefly in a mechanical point of view), and consequently extreme depletions were recommended as the only means of safety. This mode of treating diseases seemed to be so vigorous, and so quickly effectual in relieving symptoms, that it was widely adopted, especially by the junior members of the profession. But it not unfrequently happened, that the vigour overshot the bounds of eventual safety,—those *certi denique fines,* which it is always difficult not to transgress; and then the patient died of the lancet, rather than of his disease; while the medical attendant tried to soothe his conscience by the thought, that his patient's natural constitution had not been strong enough to bear him safely through his unavoidable trial.

These occurrences but too often took place, more particularly when irritation was mistaken for inflammation. Dr. Hall has done much good in laying down a diagnosis between these two states, as well as in pointing out the signs of re-action after loss of blood. He says:—"The symptoms of reaction from loss of blood accurately resemble those of power in the system, and of morbidly increased action of the encephalon; and from these causes, the case is very apt to be mistaken and mistreated by the further abstraction of blood. The result of this treatment is in itself apt again further to mislead us; for all the *previous symptoms* are promptly and completely relieved; and this relief in its turn, again suggests the renewed use of the lancet. In this manner, the last use of blood-letting may prove suddenly and unexpectedly fatal."

That this is the language, and these the observations, and deductions of experience, I can personally testify, as well as to their great importance in practice, when they shall become more generally known and acted upon, throughout the profession, than they are at present. That in some constitutions inflammatory action cannot be subdued without detractions of blood, early and large, general, local, and repeated, every one must be agreed; and, also, that inflammatory action must be perseveringly combated, until it is reduced; that the snake must not merely be scotched, but killed: or else a change of structure takes place, and the favorable opportunity for remedies is gone. But there are other instances of its occurrence, wherein I feel assured that cures may be effected without the loss of a single drop of blood,—my note-book can furnish many such.

We must recollect, that if undue abstractions of blood reduce the inflammatory disorder, they, at the same time, so impoverish the blood, and debilitate the system, as often to induce the supervention of tubercles—a most intractable foe to life.

About two years ago, there was an epidemic attack of measles in my neighbourhood, and I found that some of the practitioners treated their patients by venesection, leechings, &c.; and that although some of these patients seemed to get rid of their inflammatory symptoms, yet when it was expected that strength should revisit their frames, they remained weak, a slight hacking cough was observable, and tubercular phthisis ultimately became evident. At the same time, I, and some other medical gentlemen, with whom I had opportunities of communication, had to treat cases of the same epidemic; and although we applied neither lancet nor leeches, our cases did well—convalescence ensuing happily, and in due time. Again; I have frequently had occasion to observe, that the affection of the head, shewing itself in a heavy, sleepy, or semi-comatose state, after purgation, and which at times precedes the rubeolar eruption, is often the result of an effort of nature, requiring repose of organs—a *molimen naturæ conservatricis*—rather than of morbidly increased vascular action, or of cerebral pressure; and that not only it is not relieved by depletion of blood, but it is aggravated by it. I can recollect more than one instance where the infant's life has been sacrificed in consequence of the inveterate disposition which exists, to attribute all drowsiness or heaviness of head in children, to congestion of the brain, and to treat it as such; whereas, as Dr. Gooch has truly said, these phenomena may often depend on deficiency of nervous energy. I believe we may discriminate such cases by the temperature of the head not being materially increased, or above the normal standard; or by cold, pale, flabby cheeks, and tips of ears, and by the previous occurrence of exhausting discharges or circumstances. This semi-comatose state so much resembles a state of sleep, that it may be worth while to remark, that we may ascertain the point by giving some drink; if coma be present, the automatic movements will continue, and the drink is swallowed; whereas in a state of natural sleep, the patient must be awakened before he can swallow. In the bronchitis of the strumous, or the elderly, again, much blood is often unnecessarily shed; and some persons will suddenly and unexpectedly succumb, under such circumstances, although each venesection seemed to give relief at the time.

Of all the various abnormal conditions of the pulse, there is no one which more urgently demands the attention of the young practitioner, (and which requires that it should be detected so soon and watched so long as it exists) than that state of it which medical men call hardness, but which may as well be denominated a coaty pulse. The contractile powers of the artery depend on the due supply of nervous energy;

and in proportion as that nervous energy is supplied, in greater intensity, through inflammatory action, so will the coats of the vessel appear to the exploring finger to contract vigorously; and thus, when I have been in doubt, as to the propriety of further detraction of blood, I have never hesitated to deplete, in quantity to be regulated by the peculiarities of the case, when I have felt this kind of pulsation in the artery—at the same time, I have paid attention to the precautions about to be detailed. It is possible that the pulse, after exhausting hœmorrhage, might be mistaken for that which I have alluded to; but the pulse of reaction, following exhaustion, is of a bounding character, and when once clearly distinguished, can readily be afterwards recognized;—the preceding history will afford important aid, as will also the concomitant symptoms. The stethoscope will, also, often indicate venesection when the pulse is small, and give us material assistance when in doubt. I now make it a rule, when I wish to ascertain the proper quantity or repetition of blood to be taken away—(and as a rule of practice I have found it a serviceable guide)—to observe in how short a time concretion of the abstracted blood begins to take place in the first cup: for blood concretes speedily in proportion to the debility of the system. The blood in health usually begins to concrete (that is, to coagulate) in $8\frac{1}{7}$ minutes, according to the late intelligent Mr. Thackrah, from whom I quote; whereas, in some cases of disease, it will concrete in little more than 4 minutes.

We must not fail, also, to observe the firmness and tenacity of the coagulum, and the proportion of the cruor; as the affinity of the albumen for the hœmatosine is probably increased in tonic or inflammatory states. One source of fallacy may arise from the serum only slowly exuding from the crassamentum, owing to the coagulum adhering to the sides of the recipient vessel, or owing to the shape of the vessel: the coagulum would then be soft; but to avoid this error, we must divide the coagulum, after it has stood from ten to twenty hours; then, if no considerable quantity of serum exude, and the crassamentum remain firm, further depletion is fully warranted.

An habitually large or dilated pupil is usually a token that the constitution is weak, and will not bear much depletion of blood; it is one of the best visible and external indices of weak organic nerves that we possess.

Dr. Marshall Hall has also given some useful directions about blood-letting, which will be found in his work.* He recommends venesection while the patient is in an erect position. In inflammation there will be a toleration of blood-letting, and thirty, forty, or fifty ounces of blood may be taken away before the slightest deliquium is observed. In cases of irritation (that is, of much action with little sustaining power), there is frequently the most perfect syncope on abstracting nine or ten ounces of blood.—This is valuable information.

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* Remarks on the Morbid and Curative Effects of Loss of Blood.

As a striking example of recovery from severe bronchitis, without loss of blood, I may adduce, and can truly say, *horresco referens,* the case of my own eldest boy, then only eleven weeks old. He was not of a strumous habit; if he had been, leeching would have been still further out of the question; everywhere throughout the lungs mucous, sonorous, and sibilous rales indicated the severity of the disease,—yet he recovered without the application of a single leech. My note-book would furnish many similar examples of what may be done, without blood-letting, in such disorders, and at all ages.

One sometimes meets with a supervention of phthisis upon fevers, especially upon typhus; and I have generally found that the result has been partly owing to the *nimia medici diligentia*—evening exacerbations having been attacked by cuppings or leechings, and morning collapse or debility by tonics, sometimes even by stimulants,—a system of treatment uniformly to be avoided; and in lieu of which we should adopt, after the few first days, that expectant yet watchful medication which has been found, by the experienced practitioner, to be the most successful.

This periodicity of nature, thus exemplified in fever, is a subject of exciting interest to the reflecting mind. We observe that nature exhibits herself in periodical phenomena—and the medical man often has occasion to perceive that "Certain days occur in which weak and susceptible persons in general feel worse than at other times. Epilepsy, headache, and various nervous complaints, are worse at these times; insanity, also, has its worst symptoms at certain lunary periods, and hence the origin of the term *lunacy*. My own observations have induced me to believe that if a more strict enquiry were always made into the feelings of patients, perhaps amounting to a degree of attention which would be called trifling, there would result a much more extended knowledge of the periods of symptoms than physicians generally possess."—*Foster on Epidemia, p.* 23.

Is it not too probable, that by an inattention to this fact, we have sometimes attributed to an increase of the disease what was merely an effect of this periodicity of nature, and have instituted too active a mode of treatment for a temporary, evanescent, though for a time recurring condition of our patient; and it would be well if the medical man would bear this tendency in mind more than it is to be feared he does. Many an heroic dose, or slaughtering depletion, might then probably be occasionally spared.

In the middle or even later periods of this formidable fever (typhus), I must bear testimony to the great efficacy of large doses of the carbonate of soda, without the muriate of soda or any other salt, every four hours, either administered in water or in some tonic infusion—(and I know other gentlemen who will corroborate my opinion). It is surprising how soon the tongue will clean under its use, and the collapse give way. The knowledge of this fact will ultimately appear to the practical man to be one of the most valuable results from Dr. Stevens' experiments on the saline powders. In the earlier periods, if excitement or tendency to visceral inflammation prevail, a certain measure of depletion, with mercurials, will prove to be of the greatest benefit; but there are many cases of typhus, in which the impression made on the ganglionic system of nerves, by the virus occasioning the fever, is so overwhelmingly sedative, that little or no reaction seems to take place; nor are any symptoms of visceral inflammation ever visible. These are instances of genuine typhus; and to bleed, is to destroy the patient, who never, from that moment, recovers. If delirium occur in fever, some practitioners are sure to refer it to increased vascular action, and act accordingly; yet the pathological state may be the very reverse of vascular excitement or repletion.

In reasoning on the pathology of these affections, may we not suppose that the sedative influence first acts on the automatic ganglionic nerves—that these cease to act healthily upon the blood vessels—that the crasis of the blood becomes altered—that decarbonization does not take place—that in consequence of such dark blood circulating through the brain, stupor and coma succeed—and, finally, that the brain ceasing to transmit its influence, life soon terminates. Cases of this kind have occurred to me, while residing in warm climates, which were sudden in their invasion, and very speedy in their fatal termination.

At the same time it must not be forgotten that when, during fever, inflammation attacks any important organ, in a person of highly tonic habit, and in great intensity, depletion must be early and vigorously resorted to, again and again, till not a single scintillula of the previous fire remains to be quenched.

To secure a healthy decarbonization of the blood, and to prevent internal congestions, I know of no more effective means (others must not, at the same time, be neglected,) than those whereby a healthy state of the skin can be maintained. By a healthy state, I do not mean its temperature alone, but include also its peculiar very important functions; indeed, the skin presents us with an excellent index of the state of all within: its vast surface, usually so little attended to, cannot be too closely watched—and if its capillary circulation and all its functions be duly maintained, there cannot be much, if any, disease going on in the system.—The practical hygienic measures to effect this, and to promote all other secretions, have been detailed in previous pages.

When we have reason to suppose that tubercles have been deposited, and still more when we have ground to presume that such tubercles are breaking out into an active state, we must endeavour to prevent a more extensive deposition—to arrest the course of action—and, best of all, we must try to promote an absorption of the matter already deposited.

It is true, we do not at present know of any remedies, denominated specifics, which will certainly cause the absorption of tubercles; but still, we should be wrong if we say they cannot be absorbed; for, as a late writer* very truly observes, "All that we know of the action of the absorbents leads us to believe that they are capable of removing tubercle; and that such an operation, to a certain extent, does really take place, is proved by the changes which that substance undergoes in its progress to the cretaceous transformation. If tuberculous masses of long standing are thus changed, what reason have we to doubt that the soft curdy matter of which they are at first composed, is often absorbed and carried back into the circulation, to be converted into some less noxious constituent, or altogether expelled from the system."

In practice, all the evidence we can adduce, exclusive of the *post mortem* appearances, is, and must be, of a negative character,—for all we can say is, that we have had patients suffering with all the usual signs of tubercular deposit, who have recovered their health without going through the stages of softening, &c. Such cases are not unfrequent.

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* Dr. Cumin—Cyclopædia of Practical Medicine, vol. iii. p. 718.

Some phthisical looking persons will present themselves for advice, labouring under all the signs of a congestive state in the lungs, cold extremities, great dyspnæa, quick feeble pulse, *uneasiness about the sternum or præcordia,* dry cough, &c. with corresponding stethoscopic signs. In such cases, danger is immediately impending; and having first ascertained that the heart is not excited or labouring, I have commenced with an emetic—which, according to circumstances, has been once again administered in three or four days. Then a tonic and aperient *sodaic* mixture has been prescribed, together with some Chlorid. Hydrarg. and Pulv. Ipecac. Comp. every night and morning, for a few days.

To these powders great importance may be attached; and I have repeatedly been surprised at the speedy amelioration which has ensued, after only a few of them have been taken. I have sometimes been obliged to resume the use of them at all periods, when increase of dyspnæa, or of irritation of the bronchial mucous membrane, has demanded that I should do so. As soon as the congestion or excitement has yielded, they may be discontinued; and we shall know when this is the case by the state of the pulse, and by the subsidence of the other general pyrexial symptoms—the feet becoming warm, &c.; the pulse then loses its hardness, and seems to fluctuate under the finger almost as if the artery were coatless, as once before has been noticed. But when we have reason to suspect that the case before us is one where infiltration, more or less general, is taking or has taken place, the mercurial must never be given, as it will be very likely to do mischief. It is probable that mercurials have acquired a bad character as remedies in phthisis, from their having been largely tried in similar cases, or under circumstances about to be detailed. That calomel, or almost any mercurial, will, in some peculiar or some highly debilitated states of constitution, act like a poison, is beyond a doubt; and this fact is within the reach of most men's experience. And it is also known that there are some constitutions of the atmosphere which exert so depressing an influence over the human frame, that very small doses of this mineral, if given during the prevalence of such atmospherical states, shall affect the system unto even severe salivation. This was observed to take place during the influenza, which occurred in the early part of the year 1837.

When this danger exists, the atmosphere is damp, and seems, or is erroneously said, to weigh heavily on the spirits of invalids; perhaps, too, an epidemic reigns—and then the practitioner must be very cautious to whom he may give mercurials, even in the small quantities herein recommended. Whatever lowers the powers, or produces debility, will accelerate salivation from mercury: the converse is equally true,—and we find that tonics will impede or prevent its occurrence.

I recollect being called, during the first attack of Asiatic cholera, to a medical gentleman, who had taken, the night before, three or four grains of calomel, while in a state of exhaustion from the fatigue of business,—and the mercury seemed to have exerted so poisonous and sedative an influence, that he thought he was attacked by cholera. I was able ultimately to reassure him, though for some time I tried in vain. The pathognomonic signs of cholera were absent—the mercury did not produce ptyalism nor affection of the gums, but considerable collapse, and diminution of animal heat; when reaction took place, there was a great tenderness on pressing the skin anywhere over the abdomen; just as if the primary operation of the poison had been expended on the great abdominal nervous plexus—and the secondary, on the spinal nerves of sensation. If we are obliged to prescribe mercurials in such a state of the atmosphere as the one described above, it would be advisable to order the body to be enveloped in silk, which (being a non-conductor of electricity) will prevent the damp atmosphere from robbing the body of its electricity, and consequently prevent much of the debility which must otherwise ensue.

I am aware that mercurials have been objected to, in phthisis—possibly, too, by some writers, who, without experience of their own, have merely copied the statements of their predecessors; and there is no doubt, if their use be continued too long, or if they are pushed to salivation, that they will prove of little benefit in some cases, and will, in the latter event, be decidedly prejudicial. But I advocate their *very moderate and guarded use*, as equalizers of the circulation—as alteratives or febrifuges—as cholagogues—and perhaps as promoters of absorption: thus used by a *watchful* practitioner, benefit may be derived from them in many conditions of this disease. The late Dr. Young tells us, he never had reason to suppose that they aggravated the disease, although he had frequently prescribed them to a considerable extent.

From a personal experience of their value, dating from 1812, I can truthfully say of them, that in cases where high action co-exists in the system, with a low degree of vital power to resist disease or to bear the exhausting effects of medical treatment, no remedy will serve us so effectually as calomel, if judiciously prescribed and combined; and it has, in very many cases of mine, saved a prodigious expenditure of vital energy; but it is only since 1820 that I have given it, in phthisical cases, in the manner and with the views pourtrayed in this Essay. Its action varies with the pathological state,—if there be inflammatory congestion, it becomes an antiphlogistic; if the congestion be the one here described as venous, its influence will be exerted over the secretory organs, and a vicarious relief afforded, principally through the liver. This latter mode of treating disease, by opening vicarious outlets for it, which is an imitation of nature's own processes, is frequently adopted by the profession with great success; and it has been already mentioned that the liver is a powerful auxiliary to the decarbonizing function of the lungs. When the bowels are confined, and the liver temporarily clogged, the halitus of expiration becomes strikingly offensive—as if the lungs were doing double duty, and helping the liver. Mercurials, then, may be useful in this disorder, in this way—independent of the marked influence which they display over the organic nerves, and consequently over the capillary vessels or structure. That calomel is a most energetic expectorant, by increasing healthy and ameliorating morbid secretions, and that it allays irritation in the bronchial mucous membrane in a most eminent degree, I have long not had the slightest doubt,—we have only to guard against the *ne quid nimis:* and as in phthisis a small quantity of it, comparatively speaking, will effect all the good we aim at, if it prove beneficial at all, we never need venture on large doses.

The chloride will be of the utmost service in maintaining an equalised circulation, by its influence on the hepatic secretion; at the same time that it will energetically help to remove the state of congestion, especially the inflammatory congestion, around the tubercular mass—a very principal desideratum. The Pulv. Ipecac. C. aided by warm or iodine baths, further promotes our object of decarbonizing the blood, by its influence on the skin; and the vicarious assistance thus derived, from increased hepatic and cutaneous secretions, lessens the burden imposed upon the lungs, and prevents further tuberculous deposition.

I have never found a necessity for a frequent repetition of emetics,—for it appears to me that the great, if not sole, utility of emetics in this stage of the disorder arises out of their tendency to equalize the circulation, and thus to remove the congestive state, by communicating a temporary impulse. It may be, that the tuberculous matter elects the mucous membrane as a nidus, and that emetics may act by mechanically dislodging it, at the moment of its first formation; but these advantages, if they are proved to be such, are probably outweighed by their prejudicial influence upon the functions of the stomach, when frequently repeated—while many persons cannot bear emetics at all, on account of the exhaustion or head-ache they occasion.

If the cough be quite dry, I have avoided expectorants, quasi expectorants; but sometimes have given ipecacuan as an anti-hæmorrhagic in hœmoptysis, and squills with other diuretics, as diuretics,—thus attempting to get rid of much of the carbon by the kidnies. Should there be a complication of catarrh or of bronchitis, our indication would be to promote the loosening and expulsion of thick mucus, and expectorants, must be resorted to; but if there be no complication of this kind, we have a better mode of relieving the dyspnæa and cough than by exciting an increased action in the pulmonic mucous membrane—which action, by contiguity of irritation, might ultimately lead to softening of the tubercles.

That the soda is useful, facts seem to me clearly to determine; but whether its beneficial influence be owing to its neutralizing action on the stomach, or to its diuretic powers, or to a chemical action on the blood, the practical man feels it not very material to show.

If, to the symptoms above enumerated, others are added, giving us reason to suppose that an active state has commenced,—then, according to the force of the heart's action, and to the state of the circulation (not regarding mere quickness of pulse), we should recommend cautious depletion—we should vesicate, give aperients, salines with excess of soda, and the night and morning powders as before recommended. To these the iodine pediluvia, or warm baths may be added, if there be no night sweats.

Formerly I usually felt it my duty to recommend all persons thus circumstanced, as well as those who were merely threatened, to lose no time in choosing another climate, more favourable to their recovery than the one wherein they had contracted the disease. Those climates as well as seasons are most favorable to the coughing invalid which are least variable with regard to temperature,—every draught of cold air exciting cough, when inspired; and thus the disease is exasperated as often as exposure to cold air may happen. "Ex tempestatibus vero, optimæ æquales sunt, sive frigidæ sive calidæ; pessimæ, quæ maximè variant,"—writes Celsus; and as far as variation of temperature is concerned, the practical man must agree with him. We all know that the practice of sending invalids to warmer climates was at length much abused; and many a person, when no hope remained of recovery, was sent away from the comforts of his home, and the pleasure of being surrounded by attentive and sympathizing relatives, to encounter all the discomforts of travelling, and of foreign usages.

Fortunately for those whose purses will not allow of travelling and sojourning in foreign lands, but very few if any cases will now imperatively require to be sent abroad; for lately a most ingeniously constructed and practically useful apparatus has been offered to the public, the objects of which are to enable the pulmonary or consumptive invalid to take exercise, without risk, in the open air as frequently as may be necessary, and to prevent the bad effects arising in the respiratory passages from sudden changes in the temperature. I allude to the Oral Respirator.

One of the great benefits afforded by a warm climate consisted in this, that it allowed the invalid to take exercise and walk about in the open air, at less risk and with less coughing than was possible in a colder or more variable climate; but from a residence of some years in a warm climate, whither invalids were wont to flock, I am convinced this advantage was not always obtained, and that many a piercing change of weather, incidental to such climates, was unnoticed or disregarded by writers, who recommended these migrations.

However this may be, this benefit is now offered to the Englishman in the Respirator; and he may enjoy every possible home-comfort, at the same time, that by doing so he does not throw away any of his chances of recovery. Such is my high opinion of this instrument, after having worn it, and after having seen how it has acted with several of my patients, that I would now with great confidence of success, enter on the treatment of many a case of pulmonary consumption, and of irritable air passages, which hitherto I should have deemed it my duty to send to Madeira or elsewhere. It is true that the following cases have all been successfully treated without the Respirator; but the danger would have been lessened, if every patient could have purchased one, had such an instrument been known or invented.

One of the most striking features of these two stages of the disorder, is the coldness of the extremities—a coldness which, as it depends on internal congestion and defective capillary circulation, does not admit of relief from the application of external heat alone,—indeed so far is this from being the case, that external heat only keeps warm the immediate surface to which it is applied. Now, if we find that through our remedies this coldness and the morning chills or evening flushes are relieved, without *febrile reaction ensuing*, we have already placed our patient in a more hopeful state; and this point of the treatment is particularly interesting, while it is also prognostic of much that is to ensue.

Our efforts, then, must be directed, firstly, to equalize the circulation and animal temperature—secondly, to alter the crasis of the blood—thirdly, to obviate symptoms. The diet has uniformly been made to correspond with the character of the treatment—plain and nutritious when tonics have been ordered, and the reverse when fever or excitement prevailed.

The adoption, by many persons, of a system of low diet, when congestion or sluggishness of the circulation, of the first kind here described, existed, has led to mischief—the vital powers then require strengthening. When an active sub-inflammatory congestion has taken place around the tubercles, the diet must be then one approaching to a fever diet. I have ventured to repeat these remarks on account of their importance, and with a view to supersede the necessity of inserting a repetition of daily diet in the cases about to be narrated. Exercise may be taken with benefit if it be adapted to circumstances, on principles similar to those laid down for the regulation of diet. If there be little or no tendency to excitement, as in congestion of the first kind, and in indolent habits or phlegmatic constitutions, active exercise in the open air, may be recommended—season and weather permitting; but if this prove too exciting, we shall soon discover our error, by the symptoms which will frequently if not constantly ensue after such rides or exertions, namely,—dry, burning hands, flushes in the face, increase of cough, dyspnæa, and hoarseness. Then, and also when the pathological state is a sub-inflammatory congestion, or when a pyrexial state threatens, passive exercise, such as riding in easy carriages, &c., can alone be permitted; and even this must at times be prohibited.

In illustration, a few cases which have been selected are here appended: and although unequivocal stethoscopic indications of phthisis did not occur in all of them, yet there was sufficient evidence of the mischief which was about to ensue.

Robert H. Ætat 16. Oct. 1, 1833: Has been repeatedly ill. Narrow chest, light hair, leucophlegmatic countenance. There are great dyspnæa; dry cough, almost spasmodic; small pulse, 100; pale, livid, phthisical countenance; cold feet; emaciation; great heaviness and languor; costiveness; slight evening pyrexia; respiratory murmur not free over left upper lobe. A blister, sterno. ℞. Chlorid Hydr. gr. j.; Ext. Coloc. C. gr. iv. horâ somni quotidie. Warm baths.—Ordered a bitter mixture, with ʒss. Soda in each dose; some Tinct. Opii. and Tinct. Scillœ.—Oct. 11: Feet and legs have become warmer, and no fever. Went on well up to the 20th, and had been allowed full diet for some days; but two days back he complained of the renewal of languor, heaviness, and dyspnæa. I ordered Pulv. Ipecac. ℈j. vesperi. ℞. Sodæ Carbonat. ʒj.; Sodæ Sulphat. ʒj.; Sp. Ammon. C. m. x.; Mist. Amar. ℥j. bis die. The emetic operated gently twice. The Mist. Amara is an infusion of Quassia, Gentian, and Cascarilla. —Nov. 8: I find my remarks to be these,—the patient has been much better since taking the emetic; all the heaviness, languor, and other signs of pulmonary congestion were immediately, and have been up to this time, permanently relieved.—Nov. 24: Took the Sodaic, &c. Mixture up to this time; and he is now discharged, quite free from all the symptoms of which he complained. I have little doubt what this lad's disorder would have proved to be, if it had not taken, thus early, a favorable turn.

W. D. aged 15. March 30, 1837: Has a phthisical countenance, and rather precocious intellect; there are—

coldness of the extremities; pulse 90, small, feeble, and regular; cough, and frothy expectoration; daily flushes in the afternoon; respiration indistinct over right upper lobe; pain about the umbilicus; costiveness. ℞. Hydr. c. Creta, gr. iij.; Extr. Hyosc. gr. iv. on. As the flushes were accompanied with a general want of tone, and alternate chilliness, I ordered—Mist. Amar. ℥j.; Sodæ Sesquicarb. ℈ij.; Sodæ Sulph. ʒss; Tinct. Scill. and Vin. Ipecac. āā. m. xv. ter die.—On April 8, the expectorants were omitted, and m. xv. Sp. Ammon. Comp. substituted. He went on well till the 17th, when my attention was drawn to his state of dullness, heavy dyspnæa, and languor; an Ipecacuan emetic was prescribed.—26th April: Better in every respect.—May 14: A crustaceous eruption appeared over the face. The cough and abdominal pain disappeared. He was no longer thin, but tolerably fat in both face and body; still some slight dyspnæa remained, but *on exertion* only. Pulv. Ipecac. ℈j. cras; to take Sodæ Sesquicarb. ʒj. bis die.—June 18: He was discharged—symptoms gone, and health restored.

Wm. C., Æt. 16. Feb. 8, 1838: Countenance and thorax phthisical, the eye particularly so; dark hair and complexion; dry cough; pain on coughing; great dyspnæa; loins feel cold; been ill five weeks; no marked stethoscopic phenomena, but he cannot inflate his lungs at all well; no fever; pulse quick, 108. Pil. Calom. c. Coloc. j. h. s.; Mist. Purg. cras mane; middle diet.—9: Pulv. Ipecac. Comp. gr. v.; Chlorid Hydrarg. gr. j. nocte maneque quotidie.—11: Better; no chilliness. Pulv. ut ante. ℞. Mist. Amar. ℥j.; Sodæ Carbon, Sodæ Sulphat, āā. ʒss. ter die.—17: Balneum Iodinæ, nocte quotidie.—Mart. 8: Dyspnæa and cough gone; pulse, 78. Discharged.

Catherine M., Æt. 21. Nov. 14, 1837: Is subject to a dry winter cough; the least exposure gives cold to the chest; much worse lately; a very bad hacking cough; no sputum; dyspnæa; bad head-ache; cold feet; menstruation every three weeks; night sweats, and cold in the mornings; respiration not satisfactory on right side; feverish at night. Her father's family subject to coughs. ℞. Extr. Hyosciam. gr. iss.; Pulv. Ipecac. Comp. gr. iij.; Chlorid. Hydrarg. gr. ss. nocte maneque—No. xij. Pulv. Ipecac. ℈j. pro emetic. ℞. Mist. Citrat. Sodæ, ℥j.; Sodæ Sesquicarbon, ℈j.; Tinct. Hyosc. m. x.; Tinct. Opii. m. xij. ter die. Aperients, p. r. n.—Nov. 27: Cough better; head-ache gone; but a good deal of dyspnæa; bowels loose; pain on right side, back, and shoulder. Emplast. Canth. Nov. 29: Cough better; feet warmer; still sweats much. ℞. Chlorid. Hydrarg. gr. j.; Pulv. Ipecac. C. gr. iij. on. Solutio Acid. Nitro-Muriatic, to be applied to the chest every night.—Dec. 6: Another blister. Sweats much checked, but bowels loose. Pulv. Cretæ, C. ℈j. ad sedes et ter die. Mist. et Solutio Acid. u. a.—Dec. 22: Bowels right; and sweats disappeared a week ago; a pain in right side; thinks she caught some cold in getting out of bed. Empl. Canth. ℞. Chlorid Hydrarg. gr. xij.; Pil. Aloet. ℈iiss.; Antim. Tartar, gr. j. ft. pil. 12; j. o. n. ℞. Mist. Citrat. Sodæ, ℥j.; Sodæ Sesquicarbon, ℈j.; Tinct. Hyosc. m. v. ter die—Jan. 8, 1838: No cough; well in every respect. Mist. Amara, with Soda and Sp. Ammon. C. and some aperients. She was discharged this day.—This was a threatening case.

John C., Æt. 16. Feb. 7, 1838: Face decidedly phthisical; light hair and eyes; fair skin; thorax contracted; features chiselled out, and very sharp; a brother lately dead of phthisis; there is great dyspnæa, and considerable cough, causing a pain in the right hypochondrium; the sputum is frothy; pulse, 118; respiration indistinct in right upper lobe, and sound dull on percussion; left upper lobe sound; feet cold. ℞. Chlorid. Hydrarg. gr. j.; Pulv. Ipecac.

Comp. gr. v. nocte maneque quotidie. Adm. Empl. Canth. p. dol. ℞. Mist. Citratis Sodæ, ℥j.; Sodæ Carbon, ℈j.; Sp. Amm. C. gr. v. ter die.—On Feb. 15, became an in-patient; bowels very open; pain diminished. Repet. Pulv. nocturn. ℞. Mist. Amar. ℥j.; Sodæ Carbon et Sulphat. āā. ʒss.; Sp. Amm. C. m. x. ter die.—17th: Balneum Iodin. o. n.—22nd: Improving. Went on till March 15, when there was no cough nor dyspnæa; has been lately working in the garden, without dyspnæa. No signs of thoracic disease; looks in pretty good health. Discharged, and recommended to be cautions.

I was at first fearful lest this should have turned out to be a case of tuberculous infiltration. Without care, life would have been in the utmost danger.

John K., Æt. 48. Feb. 10, 1837: Of rather sthenic habit. Has had hœmoptysis; cannot lie down in bed; dyspnæa and trembling on exertion; heart's action increased at times; pulse 90, small; stethoscopic phenomena not marked, but respiration not natural in right upper lobe. ℞. Chlorid. Hydrarg. gr. ij.; Extr. Hyosc. gr. iiss. o. n. Mist. Salinæ, ℥j.; Nitrat. Potass. ℈ss. ter die.—By the 17th, he was much better, when tonics seemed to be indicated. Mist. Amar. ℥j.; Sodæ Sesquicarbon. ʒss.; Sodæ Sulph. ℈ij.; Sp. Ammon. C. m. xij. ter die.—Mar. 8: Much improved. Quinine.—Mar. 23: Discharged in good health.

Susannah B., Æt. 7. Oct. 1835: Has been ill some weeks; her grandfather died of hœmoptysis and cough,—they say he broke a blood vessel; the child is feverish at night; much dry cough; dyspnœa and catching of the breath; costiveness; pain in side and belly. Mist. Citrat. Sodæ, with excess of Soda, ter die. ℞. Chlorid. Hydrarg.

gr. j.; Pulv. Ipecac. Comp. gr. ij. o. n. Warm baths.—The state of this patient progressively improved, under my usual plan, until Dec, 9, when she was discharged, quite well.

J. W., a female, aged 22, unmarried, and of rather full habit originally. Oct. 11, 1837: The periods had been irregular for the last two months; there had been amenorrhea; dyspnœa; dry cough; cold feet; head-ache; costiveness, flatulence, and indigestion; pulse oppressed, 108; phthisis appeared to me to be impending, and unless we could equalize the circulation, and restore the uterine secretion, she would be in great danger. To relieve the visceral congestions, I ordered Venesectio to ℥x. in the evening; then an emetic of Pulv. Ipecac. ℈j.; Antimon. Potassio-Tartratis, gr. j.;—then Mist. Salinæ, ℥j.; Magn. Sulphat. ʒj.; Vin. Ipecac. m. xv. ter die.—Oct. 16: Another emetic. On the 18th, menstruation occurred.—Nov. 1: Empl. Canthar. sterno. Mist. u. a.—Nov. 15: Feels much better. The bitter mixture, Soda, the Sesquicarbonate and Sulphate, with Sp. Ammon. Comp. were ordered.—She was soon afterwards discharged, quite well.

The occurrence of menstruation, so directly after the second emetic, is worthy of remark.

B. H., an unmarried female, aged 15. Oct. 11, 1833: First menstruated ten months ago, but the excreta were of bad color; she is now not regular at all. The symptoms are—cough; great dyspnœa; sputum frothy, at times colored (she says, as if menstruous); cold feet; pain inside the chest, under right blade-bone; respiration indistinct at that period; look, highly phthisical; pulse 130, small and weak. I did not think she would bear depletion, and I ordered a blister to the sternum. ℞. Hydrarg. Chlorid. gr. j.; Pulv. Ipecac. C. gr. v. nocte maneque. ℞. Mist.

Citratis Sodæ (Soda in excess), ʒj.; Vin. Ipecac. m. xij. ter die.—Oct. 18: Breath better; the sputum comes from the bronchial membrane only, and it is not tuberculous,—it is raised more easily than it was, and is no longer colored (that is, hœmoptoic); feet are warmer; pulse, 86. Repet. Pulv. et Mist.—Oct. 25: Appetite and rest better; pulse, 80; cough still bad. Add. Tinct. Scillæ, m. xv. sing. dosib. ℞. Chlorid. Hydr. gr. ij.; Pil. Sapon. C. gr. v. nocte quotidie. A Liniment of Extract Belladonnæ and a rubefacient, to the sternum.—Nov. 1: Mixture caused a little sickness; breath and cough better.—Nov. 15: No pyrexia; and the pulse is quiet. I now ordered the bitter mixture, &c.—Nov. 29: Feels much better; and on Dec. 6 she was discharged, quite well.

This female had been under my care once before, with phthisical cough and emaciation; and had recovered. Much depends, in all these cases, on our first subduing action, and then giving a tonic as soon as it can be borne,—neither too early nor too late; and we must bear in mind that tonics will be borne beneficially, much earlier than we suppose, if we only looked to the state of the pulse, as to quickness.

E. S., Æt. 20, unmarried. June 22, 1837: Irregular menstruation, very little in quantity and bad in color—lately a total stoppage; pains in side, striking up and down; pains in the thorax occasionally; swelled ancles; painful feet; florid, phthisical countenance; quick pulse; dyspnæa. ℞. Chlorid. Hydr. gr. j.; Aloes Socot. gr. iv. nocte maneque. Mist. Citrat. Sodæ, ʒj.; Sp. Ammon.

Comp. m. xij.; Magnes. Sulph. ʒj. bis. die.—July 5: Healthy menstruation this day. Went on improving till the 21st, when pain attacked the left side. Venesectio ad. ℥xij ℞. Sodæ Carbon. ʒss.; Sodæ Sulph. ʒss.; Vin. Colch. m. xv.; Aq. ℥j. ter die.—Aug. 3: Discharged, quite well.

This was a case that might easily have glided into tubercular mischief, if the menstruation had not been put into a healthy state. The periodical secretion was restored in a fortnight; and this fact helps to show how very soon unpleasant consequences may be averted, by timely attention and by proper measures.

Eliz. B., Æt. 16. Jan. 1838: Has been ill some time; her menstruation was regular, but became more and more scanty, until October 15, 1836, when it stopped altogether. In December, 1837, she became an out-patient, under my care, until the present January, when she was admitted into the Infirmary. Her countenance was phthisical and sallow; there were sickness and rising in the throat, but eating did not increase the sickness; costiveness; a feeling of uneasiness at sternum; dyspnæa, increased on any exertion; dry cough; feet cold; weak pulse of 120; respirations, 26 to 28 in a minute; no fever. ℞. Chlorid. Hydrarg. gr. j.; pulv. Ipecac. Comp. gr. iv. hora somni quotidie. ℞. Sodæ Carb. ʒss.; Sodæ Sulph. ℈j.; Sp. Ammon. Comp. m. x.; Mist. Amar. ℥j. ter die. Iodine baths every night, to the legs, up to the knees.—On the 28th, menstruation occurred, the first time for more than twelve months; she feels much better; feet warm. The menstruation continued four days.—

On the 10th February the powders were discontinued, but the mixture continued; and on the 15th February she was presented for discharge, being then in good health.

In phthisical cases, it has been said and shown, that menstruation will sooner or later prematurely cease. In some instances, its total suppression is one of the first signs; in others, there will be a hardness, slight swelling of and pain in the breasts, such as is with many persons the usual precursor of menstruation, for two or three days before it occurs,—yet the secretion does not take place; and attention to this affection of the breasts (hitherto unnoticed by writers, as far as I know,) will be of use in practice, for it gives evidence of the *nisus menstrualis,* and (so long as it periodically re-appears) of the non-increase of the disease; in others again, there will be, for a time, a scanty show of bad color, which, at some future period, will altogether cease. Now it is so very natural to attach undue importance to the cessation of such a discharge, that it is usually considered to be the sole cause of the mischief, instead of being merely an effect of the same pathological cause, or constitutional state. Hence we repeatedly see the most violent emmenagogues resorted to, and without the slightest benefit.

Whenever we find chlorosis or amenorrhœa in a person labouring under what has lately been called the tuberculous cachexia, we must direct our exclusive attention to the general state of the system,—if we can set that right, this periodical evacuation will, in no very long time, make its appearance. Its suspension or its non-appearance, however, in such habits, should always be regarded as of most dangerous augury.

In chlorosis, the organic system of nerves is profoundly affected—the functional processes which depend upon the healthy state of that system, are no longer carried on—nutrition is partially suspended, and the food is no longer duly assimilated into blood—the blood itself of course soon feels the bad effects of this state of things, becomes, in all probability, highly carbonized, and unfitted for the purposes to which nature destined it—the cutaneous and hepatic secretions are performed with less vigour than they should be—the carbon cannot be duly carried off, nor healthy depuration effected. Here soda, chalybeates, iodine, and other tonics—occasional cholagogue aperients—*pure country air and occupations,* with attention to the *skin,* and its *capillary circulation* —will gradually, but not without much perseverance, restore the blood to its healthy state, and the constitution to its natural vigour.

Where there seems to be considerable strength, and the menstruation stops from plethora, or from internal congestions—from what the old Boerhaavians would designate an *error loci*—derivatives, leeches perineo, hip-baths, and emmenagogues are indicated.

In the following case, had not menstruation been restored, phthisis would in all probability have ensued, as the cough was of very suspicious character.

Martha S., Æt. 18½. June 21, 1837: Has been ill seven months, with dry cough, last thing at night and first in the morning; shortness of breath; quick pulse; she has not been regular, and the color and quantity bad, for a long time; no fever; violent head-ache; feet not cold; complexion, palpebræ, and skin, all strumous, ℞. Mist. Amar. ℥j.; Sodæ Sesquicarb. ʒss.; Sodæ Sulph. ʒss.; Sp. Ammon. C. m. xv.; Tinct. Hyosc. m. x. ter die. ℞. Pil. Aloes, gr. iv.; Pil. Sapon. C. gr. ij. nocte.—June 30: A discharge from the nose, and menstruation, but of bad color.—July 12: Empl. Canthar. nuchæ. ℞. Mist. Citrat. Sodæ, ℥j.; Magnes. Sulph. ʒj.; Sp. Ammon. C. m. v. ter die. Pil. Aloes, gr. v. omni nocte.—July 19: Added one grain of Calomel to the pill. —Aug. 8: Menstruation of very good color.—Aug. 23: No cough for several weeks. She was this day discharged, quite well.

The next case was of very threatening character,—indeed I feared that medicine would utterly fail, although, according to the patient's account, decided disease had not commenced more than ten weeks.

Mary Anne L., Æt. 16. Nov. 29, 1837: A brunette, but the lips were pallid, the countenance and skin unhealthy; lividity about the eyelids; has menstruated these two years, but these excreta have been lately of bad color and of deficient quantity; the feet and hands cold; there are great dyspnæa, and cough; sputa streaked with blood; pains in the chest; pulse, 100; no marked accessions of fever, but feels chilly; tongue not altered; bowels open. Admr. Empl. Canthar. sterno. ℞. Pulv. Ipecac. ℈ij,; Antim. Tartar. gr. ij. fit. pulv. emetic ij. sumat j. hodie, alter. die Saturn. ℞. Chlorid. Hydr. gr. j.; Pulv. Ipecac. Comp. gr. iv. nocte quotidie. ℞. Mist. Amar. ℥j.; Sodæ Carb. ℈j.; Sp. Ammon. C. m. v. bis die.—Dec. 2: Feet and hands warm; cough and dyspnæa relieved by the second emetic, which acted mildly. Pt.—Dec. 6: Improving;

pulse, 84; dyspnœa much diminished; feels well at stomach.—Dec. 13: But little cough or raising; feet quite warm; flurried on sudden exertion, which, together with exposure to cold, I directed her to avoid. Pt.—Dec. 20: Menstruation increased in quantity, and of better color. Mistur. u. a.—Dec. 27: Feels worse again; pulse, 160; sputa still bloody; would not own to any imprudence in diet, &c. Mist. Citrat. Sodæ, ℥j.; Sodæ Carbon. ℈j.; Sp. Ammon. C. m. x. ter dic. The night powders of Chlor. Hydr. and Pulv. Ipecac. C. This state and these remedies were continued until Jan. 17, 1838, when my remark is, that she was again improving.—Jan. 24: No congh hardly; Pulv. et. Mist. u. a.—Jan. 31: Looking much better; says she had no cough until last night; but owns to having incautiously walked out and got cold in the snow-drift of Sunday last. Mist. u. a. ℞. Pulv. Ipecac. C. gr. viij.; Chlorid. Hydr. gr. j. nocte quotidie.—Feb. 14: An emetic was again prescribed, for dyspnæa. The Mixture as before. —Feb. 28: Menstruation occurred on the 21st; cough trifling, but still dyspnæa, and at times cold feet; no pyrexia. ℞. Mist. Amar. with Sodæ Sulph. and Carb. and Sp. Ammon. C.—Mar. 14: Chest pains. A blister. —April 18: Menstruation regular and normal; still dyspnæa. An emetic again. Instead of the Mist. Amar. the Mist. Citrat. et Sodæ.—May 2: The Tartar. Emetic Ointment. Mixture as before.—May 16: An emetic. Repet. Cætera.—May 30: Considerable nausea, perhaps from the ointment having been absorbed, or from the emetics having been pushed too far. Pulv. Effervesc.. Pil. Col. c. Cal. gr. v. altern. noctibus.—June 20: Quite regular, and improving fast.—July 11: Feels quite well; there is no dyspnæa nor cough; menstruation good in every respect; her face presents an appearance of the most brilliant health; the cheeks colored, and the skin of very healthy feel and aspect; pulse, 74.

Thus ended this difficult and very interesting case, of which, from the strong tubercular diathesis that seemed evidently to prevail, and from other difficulties, I more than once doubted the successful issue. I will make one more incidental remark on the sickness which occurred on May 30, and that is, that I have found the best mode of removing this state of stomach, and of changing the anti-peristaltic action upon which it depends, to be that of giving some aperient of slow action, and of difficult solubility, which shall act upon the mouth of the ductus communis choledochus, and upon the muscular coat of the intestines—such an aperient I believe colocynth and aloes to be. The effervescing powders, with excess of soda, were ancillary towards effecting a double purpose, that of subduing the local gastric irritation, and of obviating the tubercular tendency.

Fanny P., Æt. 30. Jan. 2, 1834: Phthisical look, and her family consumptive; unmarried; winter cough; pain on coughing; dry cough; cold feet; pulse fullish, 100; amenorrhœa of four months' standing; respiration indistinct in right upper lobe. ℞. Calom. gr. j.; Pulv. Ipecac.

C. gr. iij.; Aloes, gr. iv. o. n. Empl. Canthar. costis. ℞. Sodæ Carbonat. ʒss.; Sol. Hydrocyan. Potass. m. j.; Tinct. Hyosc., Tinct. Camphor, C. āā. m. xv.; Aq. ℥j. ter die. Jan. 4: Venesectio ad ℥xij.—Jan. 8: Repet. Mist. sine Tinct. Camph. C.—Jan. 12: The feet are much warmer. Mist. ut ante. Pil. Aloe, gr. v. nocte maneque quotidie.—14: Balneum. Iodin.—15: Appart. menses. Omitte pilulas.—20: Mist. Amar. Sodæ Carbon., Tinct. Hyosciam. et Solutio Hydrocyanatis Potass.—24: Some tendency to irritation of colon and rectum; pain on left lower side of abdomen; vesication by the lunar caustic.—28: An injection per anum, of water, ℥vi. (96° Fahrenheit). Tinct. Opii. m. viij.; Mucil. Acac. ℥j. bis dic.—Feb. 3: Slight prolapsus uteri. Mist. Amar, c. Vin. Ferri, and as an aperient an anti-hœmorrhoidal electuary.—20: Quinine. As a vaginal injection, Decoct. Quercus, with Sulphas. Alumin and Zinci, ter quotidie.—On the 27th she was discharged, cured.

Mary C., Æt. 20: On the 27th Sept. 1837, came to me, complaining of pain in the right hypochondrium; was sick after eating, but her bowels were open; sallow face; loss of flesh; a very bad dry cough, and an amenorrhœa of four months' standing; pulse quick; flushes and chills; strumous and consumptive habit. To relieve the hepatic and gastric affections, Citrate of Soda, with Pil. Hydr. and Aloes, were ordered.—Oct. 4: The Saline effervescing Seidlitz draughts with Hydrocyanic Acid.—Oct. 11: The sickness after eating abated, but pain and cough remained. A blister.—Nov. 3: She consulted another medical gentleman, who ordered Mist. Camphor with Vinum Ferri, which did not at all agree.—On Nov. 15, I again saw her; and the cough and amenorrhœa still persisting, I ordered Chlorid. Hydrarg, gr. j.; Aloes Socotor, gr. iij.; Extr. Hyosc. gr. j. o. n. ℞. Mist. Amar. ℥j.; Sodæ Sesquicarb. ʒss.; Sodæ Sulphat. ʒss.; Sp. Ammon. Comp. m. x. ter dic. Her state soon improved.—The menses appeared, on the 24th, of good color and quantity; and on Dec. 20 she was discharged, cured.

This case shows that the sodaic mixture was a more effectual tonic; and, combined with the pills, a more effectual emmenagogue than the stimulant and chalybeate.

In chlorosis and anæmic amenorrhœa, very good effects will sometimes be obtained from the exhibition of emetics of muriate of soda—the face assuming, immediately after them, a more healthy hue. It is not improbable that, as absorption is actively carried on during vomiting, some of the salt is absorbed, which together with the mechanical impulse effected by the action of vomiting, produces an alteration in the blood, with immediate benefit; and the crasis of the blood being once altered for the better, it becomes more healthily stimulant. The soda, with other tonics, is calculated to sustain the advantage gained.

E. M., Æt. 16, put herself under my care on the 25th May, 1837, after having received benefit as an out-patient in the preceding January. She looked phthisical, and had the usual general chlorotic signs pretty distinctly marked, with cough. It is true she had had some trifling shows at irregular and distant intervals, but they were very slight; she had seen nothing for a considerable time. ℞. Pil. Hydr. gr. j.; Aloes Socot. gr. iv. nocte quotidie. ℞. Mist. Amar. ℥j.; Sodæ Sesquicarbon. et Sulphatis, āā. ʒss.; Sp. Ammon. C. m. xv. ter die.—June 1: A little color in the face, but she complains of nausea, and feels as if some nisus menstrualis were at work. Haust. Effervescent. Seidlitz, with Pil. Aloet. ℈ss. hodie horâ somni et cras nocte.—June 5: Ferri Sesquioxyd. ʒss.: Sodæ Sesquicarb. ℈ij. ter die. Pil. Aloet. gr. v. nocte quotidie.—June 19: Muriatis Sodæ, ℥j. ex Aquâ, pro Emetico, et repetatur, si opus fuerit.—21: The dose was obliged to be repeated; then it operated twice, and a marked beneficial change has ensued. ℞. Ferri Sesquioxyd. ʒj. ter die, ex Solut. Ioduret. Hydrocyanat Potass. m. x.; Aq. ℥j. ter die.—July 13: Discharged, quite well, but recommended to take care of herself for a year or two.

This case was not exactly one of chlorosis, since there were some slight, scanty, and unnatural periodical efforts; but the face, the skin, and general symptoms were strongly indicative of chlorotic anæmia, combined with pulmonary mischief. Having paid some attention to the influence of emetics of muriate of soda, in asphyxial or Asiatic cholera, I would wish to recommend to my professional brethren a trial of them in chlorosis; and I believe they will find them very valuable assistants in this intractable disorder. As I have already said, the succession of the whole system tends to set the blood in healthy motion, and to remove the universal torpor which prevails—while the absorption of the salt assists in eliminating the carbon from the blood, by promoting its oxygenation or arterialization.

It has been said, that instead of chlorosis or suppression of menstruation prevailing, a very opposite state may give rise to phthisis, namely, repeated menorrhagic attacks, or rather prolongation of each menstrual period until an interval of not more than eight, ten, or twelve days occurs between the periodical accessions. It is at once evident that a drain of this description must greatly and speedily exhaust the patient; and this exhaustion will soon give rise to tubercular deposition, especially in those predisposed. I believe these discharges do not consist so much of pure blood as of diseased secretion; and that this morbid secretion may depend on the state of blood and nerves already described as predisposing to tubercular cachexia. The clots of the menstrual secretion can generally be distinguished from the coagula of uterine hæmorrhage; but there may be cases where hyperœmia of the uterine mucous membrane may co-exist with the aforesaid peculiar state, when there will be an intermixture of both.

In practice, such attacks are insidious, and tend to mischief; they must be most actively and perseveringly treated, until the tendency is removed; and a considerable time will often be required to put the person in a state of safety. The very worst and most rapidly fatal cases of phthisis to which I have been called (often at and even past the eleventh hour) have been those which have begun in this way. The infiltration of tubercle, and the disorganization of lung, have hastened on to gangrene, in an incredibly short space of time; and the cadaverous fœtor of the breath, body, and excretions, is often very remarkable—tainting the whole room in which the sufferer lies, for some time before death.

Fatal as these attacks are, when the pathological state out of which they originate has been neglected, there is much pleasure in the knowledge that medicine and judicious treatment have great controlling power over these discharges in the beginning—only they must not be lightly treated, by saying that the person is merely a little more unwell than she ought to be. The treatment must vary with the state of the circulation and constitution.

We now arrive at that stage of pulmonary consumption in which we find that, either from want of professional assistance or from failure of remedies, the tubercles begin to soften. Here much, very much, depends upon the watchful attention, the practical knowledge and discrimination of the watchful attendant; and if it be the first attack, one hardly need hesitate to say, provided all directions are implicitly obeyed, and no time has been lost, that it almost depends solely upon this gentleman whether success or failure shall result. I say almost—because there are cases in which the tubercular diathesis is so intensely and universally prevalent as to render nugatory every kind of treatment, even in first attacks: I allude more especially to those instances wherein extensive infiltration of tubercular matter takes place,—for such are, I believe, pretty well without exception, beyond the reach of medicine. I would also include in this gloomy prognosis, all those cases which occur in persons who have been habitual hard drinkers; for such habits invariably destroy the digestive powers, so far as to take away the chief means whereby the strength may be supported, and life sustained. From the double source of exhaustion in these cases, the pulmonary and the gastric, the emaciation and vital depression hurry on at a very rapid and nearly uncontrollable rate.

Our plan of treatment must be based upon the following indications:—To subdue action; to promote the resolution of the inflammatory congestion, which obtains around the tubercular mass, as soon as possible, and at as little cost to the powers of the constitution as possible; then to seize the first moment which presents itself for supporting the strength, while the vomicæ is emptying itself; lastly, to obviate symptoms.

No one of us, who may have practised a few years, but must recollect the various systems of cure which have been in turn recommended as infallible, and by which the credulous public have been gulled. That this credulity originates from, and is in proportion to, the confiding public's total ignorance of the special matters in question, is beyond a doubt. "The less we know as to things that can be done, the less sceptical are we as to things that cannot." Let us hope that the numerous works on hygiene and on the philosophy of living, lately published, will gradually dispel these clouds of ignorance, and enable the invalid to see through the interested presumption of the shameless quack (whose baneful trade is a constant tampering with human life), if not also to judge who will be his best pilot through the appalling difficulties of a dangerous sickness.

Some persons say they have cured by one remedy, others by another,—some have advised a tonic mode of treatment from the beginning and throughout,—others have prescribed low diet throughout, — now a perpetual waistcoat of blisters is the only successful remedy, — then a mere surgical and mechanical view of the disease is taken, to the exclusion of its constitutional character, and we are told a mechanical inhalation may alone be trusted to,—then again a rubbing counter-irritation, with inhalation, presents the only chance of success. All this is wrong; every case of this disease, like unto every case of every other disease, we shall find, will offer some peculiarities, and these peculiarities will demand an especial treatment. Some persons will require several blood-lettings before action is reduced within the limits of safety; in others, a single venesection may prove to be a fatal error; some will require tonics and nourishing diet early; others, not at all.

With respect to one of the modes of treatment just mentioned, inhalation—I have tried it in the ways recommended by Sir Chas. Scudamore, and by Dr. Ramadge. The result of my experience has been, that medicated inhalation is of little use; and further, that in many instances, the iodine in vapour seemed to disagree so much as to prevent its being persevered in. I also have prescribed inhalation according to the directions of, and with the inhalers recommended by, the latter writer, whom I do not know, but whose researches in pathology are known to many members of our profession; and I agree with him in thinking that its operation is mechanical. I do not, however, think that when benefit is derived from it, either pulmonary expansion has been produced to such an extent as to bring into contact those early cavities which (he says) are invariably formed at the summits of the lungs, or that pulmonary catarrh or vesicular emphysema has resulted. Of the existence of the early cavities above alluded to, in the early stages of phthisis, I am very doubtful; for, to the best of my belief, there is no evidence of them in very many or in any cases; and with respect to pulmonary catarrh and asthma proving preservatives against tubercular mischief, (supposing even inhalation can excite such disorders,) I believe there are facts extant to prove the very reverse. The way in which inhalation must prove beneficial must be by expanding the air-cells, and particularly those air-cells which, under ordinary respiration, are not properly permeated by the air,—the effects of which expansion are, a freer circulation in the blood vessels, venous and arterial; a consequently freer oxygenation of the blood; and a prevention of congestion in the great abdominal and thoracic veins, in the way glanced at in page 75. Where patients can attain these objects by gentle exercise in the open air, I should care little for mechanical inhalation; but where, from circumstances, they cannot, it may be of service, by way of prevention, in the early periods; and sometimes it may be useful in the latter periods, under most watchful care. Inhalation is counter-indicated by the co-existence of any cardiac affection; and it will prove highly prejudicial, if there is any active sanguineous or inflammatory congestion around the tubercular masses or vomicæ. Under these restrictions, it will often assist in our treatment, and procure ease by quieting the night cough considerably.

To fulfil the two first indications, as above stated, we shall find the chloride of mercury of great assistance, and that it will save the necessity of abstraction of blood, in weak constitutions.

The inflammatory congestion presents its own stethoscopic sign—and that is, a crepitous murmur or rale; but should that rale not be distinct to the ear, we may tell by the tongue, pulse, and general symptoms of pyrexia, when and whether this state has been reduced or not.

It is of the utmost importance to lose no time; for in many of the cases of rapid consumption, of which we read, it is to be feared that the inflammation and congestion have been suffered to extend their ravages unchecked—that an extensive suppuration has ensued—and the tubercular matter, extending widely around, in and on the suppurating surface, the most serious and fatal disorganization has resulted.

It has been supposed that if only one-tenth part of the lungs remained sound, respiration can be carried on, with continuance of life. Laennec tells us,* that in pneumonia, one whole lung, and more than half the other, are found at times quite impervious to air. On the other hand, we find death to take place before the obstruction has reached the fourth-part of the organs of respiration; a fact, which, with many others, proves that death is frequently occasioned much more by the exhaustion of the vital principle than by the extent or intensity of the organic alteration.

Therefore, in treating consumption, we must never forget, that he will be the most successful practitioner, who, in subduing inflammatory action or excitement, shall have least impaired the vital principle and powers; and much of whatever success I may have to claim, may be attributed to my strict observance of this rule of action.

When the bronchial membrane has been implicated, we shall see the various colored characteristic sputa expectorated, the cough will persist and augment daily in violence, until some specks of fawn-colored matter may be detected by the *close observer*, mixed up with the rest of the sputum. The flaky or rounded peculiar colored tuberculous matter differs in appearance from either pus or mucus, and may often be distinguished from the other fluids with which it is intermixed—and it is of the utmost consequence that we should distinguish it; for the success of our treatment depends, in the first place, on our reducing the inflammatory engorgement as quickly as we can; and, in the second, on our giving all the non-stimulant support we can, when the true pus or muco-purulent inflammatory expectoration has disappeared, or is fast disappearing.

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* Translation of Laennec by Dr. Forbes, 3d edit. p. 205.

This kind of expectoration (the tuberculous) will increase, and the thick muco-purulent sputum will diminish, in proportion as the congestive or inflammatory state has been relieved, until tubercular matter, intermixed with a little mucus, is alone ejected; the tongue will now become clean, and rather (sometimes very much) redder than it is in health; the appetite will be good; and the general pyrexia, excepting the characteristic quick pulse and the daily hectic paroxysm, will have given way. We may now, bearing in mind the juvantia and lædentia system, cautiously venture upon a tonic plan; and here again the soda and bitter medicines will be eminently serviceable. If we are, even now, premature in giving tonics, the symptoms immediately consequent will soon show us our error.

Repeated blisters are of use throughout. Vesication, also, by means of the lunar caustic—irritation by mustard poultices—and pustulation by the Ung. Antimon. Potassio Tartratis, are also of great use, in the way of counter-irritation, and to remove the pains in the side or elsewhere, which occasionally occur in phthisis.

At length the tuberculous expectoration diminishes in quantity, while the dyspnæa does not increase, or rather diminishes with the quantity of the sputum, and recovery takes place.

If the expectoration become scanty, and the dyspnæa increase, we must do our utmost to avert the danger that is likely to accrue; an emetic or two will then be of service,—and the change in the color of the countenance, from a dark to a light red, is often very striking, soon after the operation of the emetics. I have tried the potassio-tartrate of antimony, somewhat extensively in this disease, not as an emetic, but on the contra-stimulant principle; and do, occasionally, resort to it when the patient is of a sthenic habit; but when the disease occurs in persons of weak constitution (and the great majority of cases happens in such persons), I have hardly ever found it to do good, but the contrary, and I have been obliged to desist from its use. It seemed to derange the stomach and exhaust the vital powers.

With respect to the last indication, as regards the colliquative perspiration, the nitro-muriatic acid solution will be found to do much good. It was first prescribed by me, with a view to the checking of these sweats; and I have found it not only to do that, but also to help in our principal object of decarbonization, by its action on the liver, —so that latterly I have prescribed it with benefit as a prophylactic in the early stages of phthisis, when danger has appeared to be impending. That the liver is a powerful auxiliary to the lungs in respiration, has been already stated. The comfort some of my patients have derived from its use has been great, they have assured me; and they have begged for a fresh supply, when they have intermitted its use for a few days, in consequence of not having any by them.

It is remarkable that in cases of biliary torpor or of hepatic indigestion, the profession does not make more use of this local application than it does. It has not been prescribed by me as a bath, but as a lotion to the ribs and sternum, before going to bed, and if necessary, during the night, previously wiping the surface quite dry—it should be of a blood-heat temperature.

Where tubercles are about to be deposited in the liver, leading to the extinction of life by ascites, one should presume that the daily and nightly use of this solution would be especially serviceable.

In December last, I assisted at the *post mortem* examination of a boy aged 14, whose relatives were all of a highly strumous constitution, and who had lost some of them by pulmonary phthisis. He had just returned from a London hospital, and had died with abdominal dropsy, which had been twice relieved, but to which he at length fell a victim. His liver was contracted to nearly half its proper size, and its surface as well as its interior were studded throughout with granular tubercles; its peritonæal coat was irregularly raised, and so occupied with tubercles, that the finger seemed to be passing over a number of hard peas—the color of the liver was reddish yellow, and there was some cystic bile in the gall bladder—the lungs and heart were quite sound. The appearances resembled those of the cirrhosis of Laennec; but the disease appeared to me to have been a good specimen of tuberculated liver; and its occurrence corroborates the remark of Mons. Andral, that tubercles appear in other organs, without there being any in the lungs, more frequently in children than in adults. In cirrhosis, jaundice is stated to be an unfailing attendant; but in this case, notwithstanding the extensive hepatic disorganization, there had never been any jaundice—the boy's face only presenting that sallow hue which is common in chronic disorders.

It cannot be necessary to point out the great advantages which must arise from stopping or even checking the perspirations, as our great object in this dangerous state of our patient must be to save his strength, that he may be supported through the attack of his disorder. I must here again point out, though at the risk of a charge of needless repetition, that we know great debility to be a strong predisposing cause of the tubercular deposition; and therefore, if it be induced, or if it be not prevented, our patient will be liable to continual fresh depositions of tubercle—the sound lung will be more and more encroached upon, and recovery will not merely become doubtful, but hopeless.

This local application has, in the early stages, so acted upon the liver as to ensure a regular fæcalization, without aperients; and in some cases, during the later periods, it may have prevented the alternating colliquative diarrhœa, where such diarrhœa has not depended upon tubercles in the abdomen, or upon ulcerated Peyer's glands, or intestines.

It is probable that this diarrhœa may sometimes originate from an irritation of the intestinal mucous coat, caused by a morbid crasis of the blood in the vessels supplying, and circulating on the coats of, the bowels—then, this application will be of service. The diarrhœa of phthisis is seldom absent,—a late writer says only five times in 112 cases; in some, it begins with the disease; in the greater number, it begins in the second stage; in one-fourth, from five to twenty days before death. But, at whatever period the diarrhœa may arise, this application will at least be found not to increase the tendency to it that exists; and

I have found its exhibition not to impede the action of cretaceous mixture, catechu, or of other vegetable astringents.

In this stage of the disorder, expectorants become necessary occasionally, if not throughout—more particularly when the expectoration is not free, and the sputa are not easily ejected. The violence of the cough, and the consequent straining, will be thus diminished.

One of the most serious complications is hœmoptysis, which may occur at any period of this disorder. At first it may result from an effort of nature to relieve the congestion or compression of the blood vessels by the tuberculous deposit, which prevails at a certain point or points,—in proof of which, we observe that it does relieve the dyspnæa and other thoracic symptoms for a time; and this fact shows us that we shall best remove this ejection of blood by attacking the congestion which is the cause. Here the hæmorrhage proceeds from the mucous membrane of the bronchi or air-cells of the lungs. The quantity of blood thus discharged varies very much: sometimes a truly alarming quantity is thrown up; in other cases, the ejection of blood is repeated several times, without loss of life,—it is probably acting as a safety valve. At times, in females, it might be (though perhaps rarely) a discharge, vicarious of the suppressed periodical one; but in others, it is symptomatic of pulmonary tubercles; and according to Mons. Louis's experience, it arose from the last mentioned cause in the proportion of two-thirds of his cases.

I do not believe that hœmoptysis directly originates tubercles; on the contrary, I think the balance of probabilities inclines to the supposition that tubercles cause the hœmoptysis; and as far as my individual experience has enabled me to judge of this *vexata quœstio*, I have, on careful examination, met with simultaneous indices of tubercles in the lungs, in all cases of hœmoptysis not depending on disease of the heart, or on general plethora.

In the later periods, hœmoptysis may occur in consequence of a congestive state—

of a fragile condition of the vessels, combined with pressure from tubercles—or of ulceration or gangrene having taken place, and opened some artery traversing or lying contiguous to a vomica. In this last instance, no coagulum has been formed; if the artery be a large one, death quickly ensues; if not, the exhaustion and danger from the hæmorrhage are in proportion with the size of the vessel opened.

Our practice must be, first to ascertain if the heart is acting with much impulse and quickness,—the hæmorrhage would then be of an active nature; and then, although in all hæmorrhages there is an impaired tone of the coats of the vessels, or else the *vis a tergo* would have been successfully borne—yet, to subdue excitement, venesection, with very active measures, must be adopted. The stethoscope will here again assist us; and the impulse of the heart, with the vigorous bounding, vibrating or dicrotic pulse, will sufficiently indicate the mode of treatment to be adopted; but if a quick weak pulse, a weak cardiac action, and signs of general debility be present, we shall find a few sedatives, with ipecacuan and the medicines before recommended, to be our best assistants.

I have tried aconite (the old extract, not the aconitine,) with marked good effects in some cases; it evinces a wonderfully restraining power over the motor forces of the circulation, probably by its influence on the supplying nerves. The dose must be accurately proportioned; but if head-ache or vertigo ensue, it will fail altogether. It is with this, as with other medicines, we must learn when and how to use them.

As a remedy to be generally adopted for expectoration of blood, I know of no one so useful as ipecacuan; it will sometimes succeed where the acetate of lead and other astringents have failed. The acetate of lead is relied on by many practitioners; but we all are aware that it sometimes answers our expectations and sometimes disappoints them; neither is it adapted to strong plethoric habits, nor to cases of hœmoptoe, arising out of, or co-existing with, the active sanguineous congestion, of which mention has been made. Its uncertainty may sometimes depend on what it encounters in the stomach; but the efficacy of ipecacuan in restraining discharges of blood, &c. from mucous membranes is very marked and nearly unfailing, as we see exemplified in diarrhœa, dysentery, pulmonic and uterine hæmorrhages—which facts would seem to convert the supposition into certainty, that this medicine possesses some considerable, shall I not say some specific power over the terminal or lateral pores of the capillary vessels.

There are few cases of this affection in which its use is counter-indicated; neither have I found that its beneficial influence has been always connected with nausea,—for in some instances no nausea has been felt. Judging of ipecacuan from the effects which it seems to produce, and in our ignorance of its *modus operandi*, one can do little more than concur with Pison and Marcgrave, who, in 1648, wrote an eulogy on it, and summed up by saying, "Adstringendo viscerum tonum restituat."

The nitro-muriatic acid lotion or bath will again here combine with our treatment.

With regard to the prognosis of hœmoptysis, when associated with tubercles, we must give a cautious opinion, whenever it appears intractable—whenever it accompanies, to any extent, tuberculous expectoration—and particularly in cases of infiltration, where there are occasional discharges of blood, in some quantity, together with a rusty-colored sanious sputum; for such cases are eminently dangerous. But in the earlier periods, as I have already said, the hæmorrhage is often beneficial, by relieving the congestion—usually the cause of much mischief. I do not mean that we should not try to restrain such hæmorrhage, but merely that we must endeavour to suppress it by the only right method—that of removing its cause.

Some practitioners have been obliged to combat the inflammation excited by the blood remaining in the air-cells and passages after the hæmorrhage has ceased, and have been under the necessity of giving emetics, after proper depletion, to get rid of it. We must, therefore, be on the watch for the signs of such consecutive inflammation—such as coaty pulse, heat of skin, increase of cough and dyspnæa, deep-seated pain; and we must bear in mind that the stethoscope will not here be an unerring guide,—for the auscultatory results may simulate the signs of inflammation, and yet arise out of this infiltration into the bronchia and air-cells.

Wm. A., Æt. 16½. Apr. 11, 1838: Of light complexion, greyish blue eyes, strumous face, narrow chested, and tall; has been ill about two years, with a winter cough; has latterly been much worse; is emaciated; raises a good deal of purulent matter, much streaked with blood; his feet are occasionally cold, and legs ache; constant dyspnæa, but increased on exertion; respirations, 28; pulse, 108; nightly perspirations; respiration in right upper lobe indistinct, and slight bronchophony; no distinct pectoriloquy; can lie best on his back. A shoemaker by trade. Adm. Empl. Canthar. sterno. ℞. Chlorid. Hydr. gr. ij.; Pulv. Ipecac. Comp. gr. iv. nocte quotidie. ℞. Sodæ Sesquicarbon. ʒss.; Vin. Ipecac. m. xx.; Solut. Sodæ Citrat. ℥j. ter die.—April 18: Better; has not raised blood these two days; cough better. Repet. Mist. Diminish the dose of the Chloride to half a grain, o. n.—April 25: Perstet.—May 2: No cough this last week; breath very much better; respiration and pulse, nearly normal; face looks healthy, and fuller of flesh; says he feels himself better and stronger; the mother thinks him so well that he need not take any more medicine. A mixture of a bitter tonic, with Soda, and an occasional Calomel and Colocynth pill, were ordered; which he continued taking until he was discharged, with certain cautions as to the future. He was not kept on low diet, but on one gently nutritious, and non-stimulant.

This was an interesting case, and mischief was undoubtedly rapidly augmenting in the lungs. I did not see the sputa, as he was an out-patient—so that it is just possible the mucous membrane might alone be secreting them, or acting vicariously; still the emaciation and other symptoms were alarming.

Mary S., aged 22, a mother of two children. June 7, 1837: Complains of cough; expectoration thick and tuberculous; great dyspnæa; raises blood; has been ill twelve months; pain in side; is emaciated; legs swollen; sweats violent; bowels regular; enlarged pupils; gargouillement over left upper lobe. Empl. Canthar. part. dolent. ℞. Antimon. Potassio-Tartrat. gr. j.; Pulv. Ipecac. ℈ij. ft. pulv. emetic, ij., Cap. j. vesperi, et alter. die Saturn. ℞. Decoct. Cetrariæ, ℥iss.; Pulv. Ipecac. C. gr. iv. ter die. June 14: Has raised no blood; the first emetic relieved her much; sweats a very great deal. ℞. Syr. Sarzæ, ʒj.; Acid Sulp. Dil. m. xx.; Mist. Amar. ℥ss.; Tinct. Opii. m. x. ter quotidie. ℞. Pil. Sapon. C. gr. iij.; Chlorid. Hydr. gr. j.; Pulv. Ipecac. gr. j. nocte quotidie.—June 21: Empl. Canthar. sterno.—June 28: Still sweats as much as at first. Habeat Solution Acid Nitro-Muriatic, pro lotione, horà somni et inter somnos repet. modo dicto, si opus fuerit. ℞. Mist. Citratis Sodæ, (Soda in excess), ℥j.; Sp. Ammon. Comp. m. x.; Tinct. Opii. m. x. nocte et bis quotidie.—July 12: Perstet.—July 26: Adde singul dosib Mist. Sodæ Sesquicarbon. ʒss. ℞. Pil. Saponis Comp. et, Pil. Coloc. c. Aloe. āā ʒj. ft. pil. 24, sumat j. omni nocte.—Aug. 9 : Does not sweat at all now ; cough better ; expectoration easy, and sputum trifling ; but owing to her having eaten something which has disagreed, there are sickness and pain in epigastrio.—Aug, 20 : No cough ; pain, sickness, sweats, and expectoration gone ; she feels well enough to do without medicine.

Sarah C., aged 21. Dec. 3, 1836 : Of full habit ; has a dry winter cough, which has been increasingly violent for the last eighteen months ; the sputum strongly tinged with blood during the last week, When I visited her she was delirious ; there was a small tubercular cavity in right upper pulmonic lobe ; fever ; abdomen tense and full ; bowels had been confined for some time. I quite despaired of this case, and told the mother so. I ordered a grain of Antim. Potassio-Tartrat. every fourth hour ; for a night pill, a grain and a half of Calomel, Extracts of Colocynth and Hyosciamus, each ; as an aperient, some Pulv. Jalap with Potassæ Supertartras.—Dec. 6 : Offensive and copious motions ; rather better, but still in great danger ; delirium gone ; sputum tuberculous, with blood in it.—14 : Still blood in sputum. ℞. Vin. Ipecac. ʒss. ; Antim. Potassio-Tart. gr. ss. ; Syr. Papav. Alb. ʒj. ; Aq. ℥j. ter die. Aperients pro re natâ.—On the 21st, put on an Empl. Picis, C. with Antim. Potassio-Tart. sprinkled on it.—On the 31st, the sputum consisted chiefly of tuberculous matter, and she seemed so much better, that a tonic was ordered. Mist. Amar., Sodæ Carbonat. and Sulph:, and some Sp. Ammon. C.—On the 25th January, 1837, she had caught cold on getting out of bed,—so that, on account of the pyrexial symptoms, I was obliged to leave off the bitter and stimulant, and give Mist. Citratis Sodæ, Syr. Papav. Alb. and Vin. Ipecacuan.—Feb. 18 : Some tendency to hœmorrhoids, for which a friend of mine who visited her gave, Pulv. Succini, ʒij.; Pulv. Nucis Moschat. ʒj.; Lact. Sulph. ʒij. misce et divide in doses xx. capt. j. bis die. —On March 11, she was certain she had again caught cold, and the bloody sputum re-appeared. Vin. Ipecac. Tinct. Scillæ and Tinct. Opii. were ordered.—On the 15th, Soda, Ipecacuan, Squills, and Hyosciamus.—On the 29th, a regular healthy menstruation.—On April 10, she took the Iceland Moss, and the Soda, Ipecacuan, &c.— May 15: Going on very well.—And on the 17th June, this highly anxious and interesting case terminated in recovery; the tubercular expectoration having ceased for some time; there was no cough; and she was quite regular.

It is somewhat late in the day to praise the Iceland moss; but I may be allowed to say, that as a gentle tonic, which will not increase the pulse by a single beat, it is very useful. Only I would strongly protest against the prevailing practice of taking away the bitter from it. Along with that very bitterness, perhaps, the principal efficacy is bound up. Great care must be taken that the moss is of the genuine kind—for much adulteration is but too often practised, and then the medical man will be disappointed. The sarsaparilla may also be securely relied on, as an excellent non-stimulant tonic.

W. S., Æt. 39. Aug. 24, 1836: cough; pain in side; sputum tuberculous, and streaked with blood; phthisical look; did not use the stethoscope; pulse rather full; he had been bled by another gentleman, ten days before. A Saline Mixture, with Sp. Æther, Nitr., Vin. Colchic, and Antimon. Tartariz. ℞. Extr. Hyosciam. gr. iij.; Pulv. Ipec. gr. j.; Aloes Socot. gr. j. nocte maneque quotidie. Empl. Canthar.; Ung. Sabinæ. — Sept. 7: Sputum no longer bloody, but much excitement remains. ℞. Antim. Tartariz, gr. ss.; Tinct. Opii. m. v.; Aq. ℥ss. ter die.—On the 28th, the bloody sputum and tuberculous expectoration had ceased. He said he was well, and was discharged.

In the next three cases, the disease had existed some time, and there was no hope of recovery from the first; but they are here narrated, to show the good effects of emetics, and the time for administering them, as well as to demonstrate the efficacy of the acid lotion in suppressing the night sweats.

Jos. B., Æt. 29. May 24, 1837: Has been ill, with cough and thick expectoration, these four months, and this is not the first attack; his pain is violent, and excited by coughing. or by a full inspiration, and he can only sleep two hours in the night on account of it; night sweats; dyspnæa; pulse small and quick, 96; tongue whitish, but without fur; family strumous, and his father died of consumption: he has been a hard drinker. ℞. Pulv. Ipecac. ℈ij.; Antim. Tartariz. gr. ij. ft. Pulv. Emetic, ij. capt. j. hodie, alter. die Saturnii. ℞. Tinct. Opii. et Tinct. Hyosc. āā ʒiv.; Acid Sulphur. Dil. ʒiij.; Aq. Distill. ℥xivss. cochl. ij. larga, nocte maneque. Aperients, pro re natâ.—June 7: The first emetic seemed to relieve the dyspnæa, and he enjoyed good rest; cough easier; expectoration is not so great; some appetite. ℞. Decoct. Cetrariæ, ℥j.; Vin. Ipecac. et Tinct. Opii. āā m. xx. ter die.—June 14: Diarrhœa. ℞. Mist. Cretæ c. Tinct. Opii.—July 5: Cough better, and diarrhœa stopped, but he sweats much. Habeat Solution Acid, Nitro-Muriatic, pro lotione. Mist. Cretæ, ut ante.—July 12: Perspirations checked, and bowels regular; cough better; expectoration increased since using the lotion. The lotion, he says, seems to draw from within, and to ease his breath, yet it makes his sternum feel sore externally.—July 19: Sweats much checked, even in this hot weather.—July 26: Obtains sleep, and does not raise much now; pulse quiet; dyspnœa, and great weakness. Infus. Calumbæ c. Vin. Ipecac., Tinct. Opii. et Acid Sulph. Dilut. Pulv. Emetic, ij.—Aug. 2: Raises the phlegm more easily, but exhausted by the last emetics; no fever, though the flesh is hot to the touch; sweats only on the side he lies upon; his mother expresses a strong hope of his recovery.—Aug. 9: Unfortunately, although I had cautioned him strongly, he caught cold; his bowels became relaxed, and our brightening prospects were all at once obscured. Mist. Cretæ c. Tinct. Opii. Lotio, ut ante.—Aug. 16: Is again better; diarrhœa moderating, and appetite returning,—Aug. 23: Better; dyspnæa only occasional; the lotion sets him to sleep, he thinks; two motions daily.—Aug. 30: Sleeps well; no perspirations; cough very trifling.—Sept. 9: Drank some beer, which had been prohibited; signs of hectic excitement increased; diarrhœa. I ordered, Sulph. Cupri. c. Opio. Lotion to be omitted.—His weakness increased until, on the 28th September, at 7 P. M., he died in a state of syncope.

It is needless to add, that I lost what little hope there was, on his catching cold; but I have no doubt that his strength was spared, by the lotion checking and stopping the sweats.

S. L., Æt. 20. Feb. 7, 1837: Face florid, and countenance like that of a person in what is called "a galloping consumption;" cough; expectoration tuberculous, and tinged with blood; emaciation. Mist. Citratis Sodæ (Soda in excess), ℥j.; Vin. Ipecac. m. xx.; Tinct. Opii. m. v. ter die. ℞. Ext. Hyosc. et Pil. Saponis, Comp. āā gr. ij. nocte quotidie. Ung. Antim. Tartariz, sterno.—March 15: The blood had disappeared from the sputum.—March 22: Thirst; more pyrexia. ℞. Antimon. Tartariz, gr. ss.; Vin. Ipecac. m. xij.; Syr. Papav. Alb. ʒss.; Aq. ℥j. ter quotidie. Pilul. ut ante.—March 29: Thirst diminished; cough abated. Pt.—April 19: Infus. Calumb. with Sp. Ammon. C., Tinct. Opii. et Tinct. Scill. ter die. ℞. Pil. Scill. C. et Pil. Sapon. C. āā. gr. iiss. nocte quotidie.—May 3: Decoct. Lichenis with Tinct. Opii.—May 17: Sputa less; dyspnæa greater. Here emetics were ordered. ℞. Pulv. Ipecac. ℈ij. capt. dimidium statim et altern. partem die Lunæ. Decoct. Lichenis c. Opio, Solutio Acid Nitro-Muriatic, more solito.—May 24: The cough and dyspnæa were both relieved by the emetics; perspirations less drenching. Repet. pulveres emetici ij.—June 7: Perspirations very trifling, also the expectoration; bowels rather confined; the flushes on the face are changed from dark red to light red. Pil. Coloc. c. Calomel j. pro re natâ.—June 21: He left off his flannel waistcoat and caught cold; feels feverish; the father is quite sure that the lotion stops the sweats. Decoct. Lichenis, ut ante. The dyspnæa persists, and the weakness is great, I hear. —July 8: This poor lad's condition did not materially alter till to-day, when on making some little extra exertion, death surprised him unexpectedly. This patient lived at such a distance that I had but few opportunities of seeing him.

A. K., Æt. 19. March 1, 1837: Is tall, and looks as if she had out-grown her strength; of strumous diathesis and phthisical colorless countenance; has not menstruated for the last nine weeks; dyspnæa; no febrile symptoms; weakness; pains about the colon, in the hypochondria; feet cold; a little occasional cough. A powder of Calomel and Jalap, as an aperient, directly, and twice a week. ℞. Mist. Amar. ℥j.; Tinct. Hellebori, Nigr. m. xx.; Sp. Ammon. Comp. m. x. ter quotidie.—Mar. 8: Pil. Ferri, C. gr. v. ter die. Pil. Al. gr. v. o. n.—Mar. 15: Sol. Potas. Iodur. Hydriod. m. xii.; Mist. Amar. ℥ss. ter die. Pil. Al. ut ante.—22: Living in a poor cottage, she has caught cold; cough, and pain in the sternum, but not severe. ℞. Sodæ Carbonat. ʒss.; Sodæ Sulphat ʒss.; Aq. Menth. Sat. ℥ss.; Vin. Ipecac. m. xii. ter die.—29: Ext. Hyosc. et Saponis Hispan. āā. gr. ij. o. n. Adde. Haust. Sp. Ammon. Comp. m. viij.; Mist. Amar. ℥ss.—April 5: Felt so well, that she requested to be discharged, and went to a place; but the amenorrhœa had not yielded. I expected to have encountered much greater difficulty, and was far from being satisfied as to her security.—On July 20, 1837, she came to me, and was admitted an in-patient; I found she had been anxious not to give up, and had suffered from cough and *thick* expectoration, for some time; her place, she said, had been too hard for her. Her present symptoms are these,—Pains in the stomach; amenorrhœa ever since; bad appetite and digestion; thirsty; pulse small, 100; pale face; feet cold; cough, and thick tuberculous sputa; urgent dyspnæa; bronchial and cavernous respiration over right upper lung; and supra spinous fossa; night sweats copious for some time. ℞. Pil. Calom. c. Coloc. statim, et Haust Cathar.—23: the opening medicine caused vomiting of yellow thick stuff, to the relief of the cough and dyspnæa; her night sweats are constant, though she feels chilly. ℞. Carbonat. Sodæ, ℈ij.; Aq. ℥j.

ter die. Solutio. Acid Nitro-Muriat. pro lotione.—21: Pain in side. ℞. Chlorid. Hydr. gr. ij.; Antim. Tart. gr. $\frac{1}{12}$, pro pilulâ, nocte quotidie sumâ.—28: A blister. Pulv. ut ante.—July 30: Sick and heavy; expectoration difficult, but sputa copious when raised; sweats checked. Adde Vin. Ipecac. ʒss. singul. dosib. misturæ.—Aug. 4: Great weakness; pulse quiet, only 80; no fever, excepting a very slight and hectic paroxysm; expectoration easy, of about ℥ij. every day; pectoriloquy. ℞. Infus. Calumbæ et Decoct. Cetrar. āā. ℥ss.; Acid Sulph. Dil. m. x. ter die.—5: Not so well; some little excitement; pain in chest; Omitte tonica. Empl. Canthar. p. dol. ℞. Chlorid. Hydr. gr. j.; Pulv. Ipecac. Comp. gr. iv. nocte maneque—8: A mustard poultice removed the pain; slight sweating; expectoration again considerable. Empl. Canthar. Pulv. Calom. et Pulv. Ipecac. C. ut ante.—10: Better this morning.—13: Expectoration to ℥iv. daily. Infus. Calumbæ, with Acid. Sulph. Dil. Diet more nourishing; a little meat allowed.—15: Pulse 82, stronger; she feels better.—18: Better these two days; some appetite; bowels open twice daily; pain in the hypochondria; still sweats. Mist. et Lotio Acid Nitro-Muriat.—24: Pil. Quinin. Sulph. j. ter die. Mist. u. a. She is free from pains; no fever; pulse weak and small; expectoration as before.—26: The Quinine agrees.—28: A pain under false ribs, increased by cough, or on a full inspiration; pulse quicker. Empl. Canthar. p. dol. ℞. Chlorid. Hydr. gr. ij.; Pil. Sapon. Comp. gr. iij. nocte maneque.—30: Still considerable pain. ℞. Chlorid. Hydr. gr. ij.; Pulv. Ipecac. Comp. gr. v. nocte maneque.—Sept. 1: Pulse quick; face flushed; pain at side; expectoration as before. Hirudin. iij. p. dol. Pulv. ut ante.—Sept. 2: The pains are gone; tongue clean; pulse, 84; rather more expectoration; no sweats; no diarrhœa.—5: Expectoration increased. Syrup Sarzæ (Hudson's), ℥j.; Vin. Ipecac. Tinct. Scillæ, āā. m. x.;

Acid. Sulphas. Dilut. m. v. ter quotidie.—Sept. 14: Having been an in-patient at the Infirmary the usual time, I could not, consistently with our rules, keep her any longer, as she was in a state of confirmed consumption, and I was consequently, though rather unwillingly, obliged to let her be discharged; but I made her an out-patient, and my notes on her leaving are these,—the expectoration of tuberculous matter continues to be considerable; night sweats occasionally; occasional pain on coughing—the pain seeming to be situated lower down, according to her account; a strong plash or gargouillement on coughing; but she is most certainly beginning to amend.

While in the Infirmary, some of the changes in this case were truly alarming, and at one time her death was nightly expected. I attended her afterwards several times, at her mother's house, a poor cottage which was much exposed to wind and cold draughts; still, notwithstanding all disadvantages, she improved—her strength increased, the thoracic symptoms diminished; and when unexpected circumstances forced me to discontinue my visits, she was in a more hopeful state than I had ever expected to see her; but, in about five months afterwards, I heard of her death, under the care of another practitioner, who, I am told, continued to bleed her nearly to the last. Had this girl not been obliged to go out to service again in April, and had she possessed the means to follow all my directions, I cannot refrain from indulging in the hope that I might have been able to prevent the subsequent attack—from which subsequent attack her striking and progressive amendment justifies me in thinking she would have recovered, but for the exhausting venesections, after I discontinued attending her. But at all events, these notes are interesting, inasmuch as they show that, under the most dangerous circumstances, much good may often be effected, and a considerable chance of recovery afforded, by a patient, watchful, and judicious treatment.

The subject of the following case is one of a very consumptive family, having lost one brother and two sisters in decided consumption; he had been subject to bilious attacks, and to a dry cough, to which latter he had not been in the habit of paying much attention. The reverend gentleman is the father of several children, and has been in the habit of exerting his voice much in preaching. He is of a square make.

On the 11th March, 1836, he sought advice, and the medical gentleman said he was labouring under catarrhal fever, for which an Antimonial Mixture, with Pil. Hydr. and Antimony. had been ordered.—On the 15th, Venesectio ad ℥xiv.—16: A blister.—18: Venesectio ad ℥xx.—On the 25th, I was called in, and found him labouring under bronchitis; febrile tongue, and yellow fur; the pulse very quick and excited; the sputa, those of bronchitis; fullness of right hypochondrium. ℞. Pil. Hydr. gr. v. nocte maneque. Salines.—26; Still fullness in hypochondrium, though there had been several motions; pulse quick. Hydrarg. c. Cretâ, ℈ss. horâ somni. Haust. Aperiens cras mane. Salines, as before.—28: A blister, to be kept open. I now, from the previous history, the hereditary diathesis, the pearly tunica conjunctiva oculorum, the characteristic pulse, &c. began to suspect tubercles. A Mixture of Sodæ Carbonas. with Digitalis and Hydrocyanic Acid, was ordered.—April 1: The pulse was quick, rather strong; and a whitish, rather coated tongue, with signs of febrile excitement, forced us again to take from the arm blood to the amount of ℥xij. The Soda, with anodynes and sedatives, were continued. Another blister, and Acetate of Morphine with Ung. Cetacei, for a dressing. A little sickness. Omitted some of the nauseant in the mixture. He now began to expectorate tuberculous matter, which was mixed up with the other secretions, but which was separable by stirring it in water. The vomica then daily discharged more and more; our patient became weaker, and much emaciated. The mother, who was in attendance, and who had attended the death-beds of the brother and sisters, told us that they were attacked in a similar way with the present son, and that they never recovered from the first. She would not admit of a hope of recovery, although I represented to her that it was the first attack of open phthisis; and that although we had been obliged to bleed three times, yet as her son was a young man, and his constitution had not been impaired by bad habits, &c., she ought not to despair. Salines and expectorants were continued as usual, until the 17th April, when a cleaning tongue and the absence of any signs of unusual excitement, led me to propose the Infus. Calumbæ with Squills, although it seemed full early for tonics. A striking amendment soon manifested itself; and with an occasional aperient only, he continued to take bitter tonics, until June the 4th, when he went into a neighbouring county on a visit; the tuberculous matter having daily decreased in quantity for some time, until expectoration ceased altogether, and the emaciation was yielding at the time he left, though but slowly. I at length had the satisfaction of seeing him restored to his family, and meeting him occasionally on his walks. He has remained free from any attack of phthisis ever since.

The medical gentleman who had attended from the beginning, and afterwards with me, writes thus, in reference to this case—"My impression is, that our patient did not improve till after the third bleeding, and blister; and that then he began to get on. I doubt, however, whether his constitution would have stood the battle, but for the timely resort to the Infusum Calumbæ, &c." In these opinions I fully concur; for as the sufferer was of sthenic habit, and as there was great inflammatory action, the venesections, &c. were necessary at the commencement. A tonic was given as early as possible—and the sooner tonic remedies can be resorted to, the better always for our patient. Here they became urgently necessary, from the previous necessarily severe treatment for the bronchitis. This gentleman was reduced to a state of such extreme danger, that those persons who then saw him, have since said they had deemed his recovery quite impossible; indeed, his life was so particularly valuable to his young family, the attack was so violent, and it occurred under such disadvantageous circumstances, from the previous fever and inflammation, that the case was one of the most painfully interesting of any I had for a long time met with. The insidious manner in which the tubercular supervened on the other disease, is deserving of notice. No medical man who saw this case could have doubted that a considerable mass of tubercles had softened, and that a vomica had resulted, the walls of which had either cicatrized or been covered with a fibro-cartilaginous lining.

From all these facts, we may learn that security in the way of prevention or prophylaxis, may be justly expected from judicious efforts; and also that while much danger may often be averted in the second stage, we are entitled to expect from the science of medicine, important aid in the third melancholy period, provided we do not relax in our efforts and in a well-directed zeal, which shall leave no symptom unobserved, no change unnoticed.

SOME OBSERVATIONS

ON

SCROFULA.

CHAPTER I.

GENERAL REMARKS.

After the observations which have been made on the pathological peculiarities of constitution which exist in delicate health, in struma, and in tuberculous cachexia, any very lengthened remarks may not be requisite in this sketch—for sketch it is—since it has not been my intention to write a treatise on this proteian diathesis or disease, but merely to give a few general observations on the treatment or prevention of scrofula, together with the results of my experience in the treatment of some of its various forms; and more especially to relate my estimation of a particular mode of using iodine. The cases cited being some few which I have selected from the mass of my notes.

The pathological and pathogenetic peculiarities have been before stated to refer more especially to the system of organic nerves, and to a delicacy of texture and fibre throughout the whole system. Thus a weak and irritable circulation exposes to the constant and double danger of high excitement, without sustaining power; while a permanent debility of the capillary system of the skin, with defective action or failure in its very important functions, disposes to glandular disorder, to internal congestions, and to organic mischief.

This disease may be either congenital, or acquired. In both cases it manifests itself in early life; indeed, nearly invariably so. Some have endeavoured to account for this by ascribing it to the much greater absolute size of the arterial capillary branches, which is peculiar to this time of life.

The period of the first dentition is that when scrofula begins to manifest itself, and all subsequent years, up to puberty, are under favouring circumstances, more or less infested with it. After puberty, the diseased tendency usually disappears, only to be renewed by bad habits and debilitating causes in the male, or by the strain on the vital powers of the female springing out of hæmorrhages, bad accouchements, and the numerous other accidents of woman's uterine life.

The external marks of a scrofulous diathesis have been already laid down in these pages, and divided into two classes. The one, consisting of persons distinguished by fair and often high-colored complexions, light-colored or red hair, long eye-lashes, light-colored eyes, large pupils, fine thin irritable skin, freely showing the sub-cutaneous veins, and a quick intellect, with much irritability. The other, by dark complexion, harsh skin, unhealthy countenance, indolent habit, and somewhat obtuse intellectual powers. Disease is intractable in both kinds of constitutions here described, but much the most so in the latter. The first class may be further subdivided into those who are endowed with habits of body easily excitable; and into those, in whose constitutions all the functions are slowly, if not inertly performed, and in whom every process going on, whether natural or morbid, betrays the sluggishness which everywhere prevails.

It attacks various textures of the human body; but we generally meet with it about the first dentition in the form of porrigo—the crusta lactca of older authors. Some very severe cases of this affection are often to be met with,—the entire face and head being at times covered with thick crusts, so as to obscure the features and imbed the capillitium; in addition to which the conglobate glands in the neck and its neighbourhood, enlarge in chains. Eczema is another form of attack; as also lupus,—of which latter affection, some very destructive instances are not unfrequently to be met with. The absorbent glands appear to be a chosen seat of scrofula—they enlargc, becomc very hard, slowly suppurate, and, if badly managed, leave large cicatrices; they are at all times rebellious to treatment. The mucous membranes are continually undergoing unhealthy action in the strumous, giving rise to indigestions, diarrhœas, leucorrhœas, and to puriform discharges or secretions from the ears or vaginæ of children; which last often will-nigh baffle the utmost skill of the medical practitioner. The synovial membranes often suffer; nor do the bones escape from the ravages of this disease.

One remark-worthy peculiarity of scrofula, is its tendency to what I cannot designate by any other term than that of conversion. Some very extraordinary instances of this tendency now and then occur, wherein disease has suddenly flitted from mucous to serous membranes, and the contrary. If the view of its pathology here proposed be correct, the quare and quomodo of such conversions are at once readily pointed out, and an approximation made towards the solution of that difficult problem in physiological pathology, metastasis. The proof that one disease influences another is derived from succession; and the evidence of mere succession consists in its analogy to the relation of cause and effect. Now, succession is the only proof of the relation of cause and effect; but we must take care to distinguish between causes and mere successions. Causes are necessary to the existence of the effect, while mere associations or successions are coincidences or combinations with causes, which have no share in producing the effect. In drawing any inference as to metastatic disease, we must bear this in mind; and also that the succession should be a double one—namely, that the metastatic disease should give complete relief to the antecedent one, and that the disappearance of the former should be followed by the re-appearance of the original complaint. A celebrated French Professor (Broussais) accounts for metastasis by saying that, organs sympathetically irritated may contract a higher degree of irritation than that of the organ originally affected. Now, this seems to be an expression of the mere probability of a fact; while the terms "sympathetically irritated" are obscure, and involve a *petitio principii* in the assumption, that an organ is sympathetically irritated, because disease of it supervenes on another prior disorder, and *vice versâ*.

In the following case, disease first occurred in a person of *delicate health*, from a blow on the eye. The tunica conjunctiva inflamed—then the peritonæum inflamed, and the ophthalmia disappeared—upon the subsidence of the abdominal inflammation, the mucous membrane became again diseased; finally tubercles were deposited in the lungs. One knows of no peculiar sympathetic irritation between the abdominal serous membrane and the mucous membrane of the eye. Had the mucous membrane of the intestines been diseased, instead of the serous, the analogical probability would have been greater, on account of the identity of the organic function; and Dr. Desgenettes, Physician to Buonaparte's army in Egypt, has put it on record that ophthalmia alternated with dysentery, in that country,—"Les douleurs des yeux et celles du bas ventre se replaçoient mutuellement." The utmost of our knowledge of metastasis seems to amount to this, that the blood vessels may be the channels and the organic nerves the agents; but we are ignorant of the causes determining the site of metastatic election, as well as of those which give rise to the transference of disease from one part to another. A successful investigation of the laws which regulate this mysterious subject would amply repay the practical man, by enabling him to prevent the translation of disease from a part of subordinate vital importance to one of great consequence to life. We should never forget this tendency in scrofulous constitutions, any more than we do the fearful ravages made by it in gout, rheumatism, and other disorders.

One striking instance of metastasis in the strumous habit, which occurred to me, was in the case of the superintending nurse of a lady of fortune, residing in this neighbourhood. The young person was of fair complexion, and of decidedly strumous habit.

In consequence of an accidental blow, in Dec. 1832, one of her eyes inflamed, and was troublesome for a time, when suddenly the eye lost its inflammatory appearances, and the symptoms of sero-peritonitis set in. On the 25th Jan. 1833, I was sent for, and I found the patient in very great danger; but by venesection, leechings, calomel, and an active treatment, well followed up, the violence of the attack abated; and on the 4th Feb. I took my leave of her, who was then convalescent. I afterwards heard that the conjunctival membrane again inflamed, and that she was under the care of an eminent London oculist for some time. I saw no more of her until I was again sent for, and paid her a single visit on the 20th Dec. 1833, when I found her labouring under confirmed phthisis pulmonalis, of some months' standing,—under which attack, I heard she ultimately sank.

Here we have an alternating conversion of disease, between a mucous and a serous membrane, until the consummating deposition of tuberculous matter took place in the lungs; and this is precisely one of the cases where the plan of treatment laid down in these pages would have afforded the best chance of avoiding a fatal issue. The pulmonic disease did not, probably, supervene until after the exhausting treatment for the eye affection; and this exhausting treatment may in most instances be avoided by a plan of treatment somewhat novel, as I shall presently endeavour to show. Now, if in addition to that plan of treatment, the various prophylactic or curative measures herein before mentioned had been put in practice, exhaustion would have been prevented, in the first place; and in the second, those internal congestions of a blood not sufficiently arterialized, which are the immediate forcrunners of phthisis, would not have occurred. Such cases are pregnant with practical instruction.

CHAPTER II.

ÆTIOLOGY.

The hereditary transmission of this diathesis has been mentioned,—that is to say, we observe children born of parents who are themselves of strumous habit, to be liable to attacks of scrofula from exciting causes, which are of too trifling influence to excite this disease in children born of healthy parents. The intensity of this tendency, if I may so express myself, is pretty nearly in proportion with the debilitated state of their parents, or with their too great juvenility or senility. Kortum, in describing the causes of this disease, says, "In primo loco occurit parentum ætas nimis juvenilis. Pluries observasse mihi videor neogamos 14, 18, annorum, quales inter plebem, apud nos multi sunt, prolem progenuisse scrophulosis et atrophicis affectibus miserè detentam. Ratio in propatulo est. Ita quoque è contrario a nimis annosis parentibus, debilis morbisque infantilibus valdè obnoxia nasci solet proles. Neque minus ab iis qui in castris veneris nimium et maturius militando, vel onaniticum vitium exercendo corpus enervârunt."—*Comment de Morb. Scrophul.*

Hence, from weakly parents, weakly children are to be expected; and the more weakly children are when born, the less able are they to resist the causes of this disease. Amongst the causes which engender a predisposition, the earliest in operation, and the most influential in its effects, is the state of the mother's or the wet-nurse's milk. If a wet-nurse become necessary, we must avoid choosing any one of strumous habit, or who is subject to debility in any shape—otherwise the spring of life may be poisoned at its very source. Nature directs that whenever it is possible, mothers should suckle their own children; yet it has not been unfrequent, among the upper classes, for ladies, either through indolence or luxury, to avoid this (one would think) pleasing task, on account of its interfering occasionally with their pleasures; still, it must be allowed that, if from weakness of constitution, many mothers are really not able to bear the exhausting burden which suckling must impose, it would then only be a sacrifice of both mother and child to persist. When the mother is strong enough, she should give up all else—she should give up even the pleasure of passing life in heated, ill-ventilated apartments, and crowded parties—to do what it is not only her duty but her interest to do; for instances are not unfrequently occurring, where serious disease may be traced to the neglect of this law of nature.

Under all circumstances, whether of wet-nurse or of mother, protracted lactation should unquestionably be avoided. Dr. E. Morton, one of my late colleagues, published some practical remarks, with cases, which were at the time well received by the profession, and are worth an attentive perusal, tending to show that meningitis (probably of tubercular character), and water in the brain, occurred in several children who had not been weaned until after various periods extending from eleven months to three years, and that the disease could be traced to no other cause than this of protracted lactation. It would be well if mothers in the lower orders of society could be made aware of this danger,—for they are in the habit of suckling until a very late period, with the view of preventing frequent pregnancy.

Food, in either too great quantity on the one hand, or in too small a quantity, or of too innutritious a character, on the other, will certainly prove a powerful auxiliary in the formation of this strumous predisposition. In the first instance, the overloaded stomach suffers—becomes unable to perform its functions—exercise is neglected—and thus the strumous dyspepsia of the rich and luxurious is formed, proving a most effectual check to further animal enjoyment, for a time at least, until the doctor can set matters right again. Too little food, or improper food, is but too often a misfortune rather than a fault; but in both this case and in that of too much food, the mode of action is the same, and the extremes meet, a proper pabulum for the chyle is not formed, and the crasis of the blood suffers a corresponding degree of deterioration. Still, we must not say that innutritious food will alone excite this disease—we must only consider it a powerful accelerator; for we shall often see a child living on a good breast of milk covered with strumous eruptions, and we shall meet with strumous disease in children of the upper classes, where no want of food can exist.

The Corsicans are but very little subject to scrofula; indeed, one gentleman has said that they are exempt from it,—yet the Corsicans live on a very poor diet. Bordeu gives us two examples of different kinds wherein struma was induced, and where manifestly poor living could not have been the causes. "Les cadets de certaines bonnes maisons de paysans de nos montagnes, se destinent ordinairement à l'état ecclésiastique: le sejour qu'ils font en conséquence dans les villes, change quelquefois leur temperament d'une manière si remarquable qu'ils sont constamment ou les seuls écrouelleux de la famille, ou du moins les plus faibles tandis que leurs frères qui vivent les six mois de l'année sur les montagnes sous de simples cabanes, sujets à toutes les injures du temps, se portent mieux qu'eux." It is at least highly probable that a town diet would not be less nutritious than a country one; therefore the strumous affection, which here arose, must be ascribed to some other cause than that of a poor diet. The other example is of a child whom a princess "Prit en affection à Barèges. Il couchait sur la dure, ou tout au plus sur le gazon qu'il partageait avec les brebis. Il n'avait pour vivre que le peu de mauvais pain que ses parens pauvres pouvaient lui fournir, avec quelques verres de petit lait souvent fort aigri. Il s'avisa de mendier. Il merita les bontés de la princesse; mais il en a peu profité: car depuis qu'il a été placé comme il faut, couché à son aise, nourri mollement, et qu'on lui a donné les premiers principes d'éducation, il est devenu trés malade: son foie et son mésentère se sont engorgés, les écrouelles se sont decidées; il est aujourdhui mort ou mourant. Cette révolution s'est passée dans un an." This is conclusive, as far as diet alone is concerned, in the causation of this distressing affection.

Uncleanliness of person may be admitted as a cause—and it acts by stopping up the pores of the skin, and thus impeding the cutaneous transpiration; but we must not lay too much stress upon this,—for children who have had every attention of cleanliness and diet paid to them, have become strumous; whilst it is of infrequent occurrence among others, living in the midst of dirt. In Palermo, where the people are very dirty, scrofula is rare. In England and Holland, where habits of cleanliness are pretty generally cultivated, this disease is frequent.

Of all the predisposing or exciting causes, atmospherical influences seem to be the most important; it is not the temperature alone,—for struma is frequent, either in very hot or cold climates. In the former, the people live almost night and day in the open air;

and in the latter, large fires maintain a constant and thorough ventilation. Cold, damp, and variable regions are those most infested; and in such regions there is less solar light; the pulmonary and cutaneous excretions are not so readily nor so completely effected, and there exists also an electrical state of the atmosphere, which is not favorable to the maintenance of that state of muscular and vital tone in which sound health consists. Dr. Hunter believed that, in this disease, the lymphatics of the skin take up some noxious particles from the atmosphere; while on the other hand, some authors have attributed so much to the deficiency of solar light, that they have considered scrofula to be a species of animal etiolation.

Females are more disposed to struma than males, in the proportion of five to three. Is it because their modes of life confine them to close apartments, and to sedentary employments, more than males?

The exciting causes are, sudden chills from incautious exposure—previous exhausting ailments—whatever excites other disorders.

CHAPTER III.

PATHOGENY.

How do the various causes above named concur in producing this diathesis and disease?

The ultimate action of all of them is upon the blood. If a mother's or a wet-nurse's milk do not agree with an infant, the chyle which is formed is bad in quality, or too little in quantity; the blood does not obtain its necessary new materials, its crasis becomes altered, and ceases to become duly arterialized; the chyle, as it passes through, causes an irritation in them, and ultimately an obstruction,—hence the mesenteric atrophy of authors. Improper or deficient food, at a later age, acts in a similar way upon the blood, though the lacteals do not suffer, except in a few instances.

The cold and damp atmosphere produces a direct prejudicial effect over the respiration, whereby the due decarbonization of the blood is not completed; while the electrical condition of the atmosphere exercises a greatly depressing influence over the human frame.

If, in addition to living on scanty or improper food, persons reside in crowded cities, or in impure, imperfectly ventilated places, the blood is not freed from its superfluous carbon, and this predisposition is rapidly formed, or, if already existing, greatly augmented in intensity. In the cases cited in the chapter on causes, was it not the want of a pure air, and of living a life of activity in the pure air, that brought on struma? And when people who live on a scanty diet do not suffer from scrofula, have not such people always had access to pure air?

We may, then, perhaps, safely conclude that the first link in the chain of causation is formed by whatever deteriorates the crasis of the blood, and that the primary concomitant, as I have stated early in these pages, is a too highly carbonized state of the blood. Thus far I concur with Mons. Baudelocque, who has written a work well worthy of a perusal, entitled *Etudes sur la Maladie Scrophuleuse,* and who ascribes this disease to a vitiation of hœmatosis; but when he says, "Il m'a paru que l'insuffisance de l'oxygene devait être regardée comme la cause du mal," it appears to me that he is straining the theory too far, and making it account for too much,—for he leaves out of his survey of causes, and of his calculation on their influence, that peculiar state of the system of organic nerves which exists, and which is probably the grand agent in the production of temperaments, and of hereditary predisposition.

We must recollect that although an impure air will at times cause a predisposition to be formed, or when combined with other causes, will excite an attack, yet there are many persons who have lived to a green old age in the midst of unhealthy places, without suffering in the slightest degree from scrofula.

Now this could not occur, if deficiency of oxygen were alone sufficient for the production of this disease. The tendency to conversion, too, can only be explained by admitting the concurring action of the organic nerves, with the generally pervading influence of an abnormal state of the blood.

CHAPTER IV.

TREATMENT.

This disease is both more easily excited and more quickly cured, when it occurs at an early, than at an adult age; because nutrition is so very active in early years that, if right measures are adopted, healthy particles of the human frame are rapidly replacing the strumous ones. The same circumstance will account for the prevalent belief that struma disappears sometimes after acute maladies,—all possible care being usually taken that, during convalescence, healthy atoms shall be deposited. Acute maladies, however, are more apt to rouse struma into action than to cure it. Hence our indications are, to assist by every means in our power, the formation of healthy arterial blood, and to strengthen the important nerves, upon the sound state of which, life and health and enjoyment materially depend.

When strumous inflammation or deposition have taken place, we must reduce the inflammatory action, and remove the morbid depositions, as soon and at as little cost to the constitution as possible. Nor must we forget that death may ensue, as well from the exhaustion of vital power, as from the extent or intensity of the organic disease. This would seem to be one of the cardinal points of treatment in scrofulous habits; and it is, moreover, a point which is but too often overlooked.

In preceding pages, remarks have been made, condemnatory of the practice of *heroic* detractions of blood, in the various inflammations occurring in the strumous—depletions which none but *heroic* constitutions can bear; and for which, fortunately, no necessity usually exists. A statistical table of such cases so treated, and followed by scrofula, would be interesting.

By way of prevention, it is indispensable that children should be brought up in the country, amidst all the salutary influences of good air, solar light and heat, with a free and constant exposure to them. No tonic will have so good an effect as these natural strengtheners of nature. Without them, little can be done; with them, every success may be expected.

When this disease disappears after puberty (for sometimes it is rather aggravated at that time), we may account for the fact by supposing that there may have been, about that period, a greater freedom from restraint, a freer exposure to air, and also that more exercise may have been taken than before.

Constant attention must be paid to diet—to modified exercise—to the secretions—*protective clothing*—and above all, to the maintenance of a healthy state of the skin, whose functions are of the utmost importance to the entire economy. Whether in prevention, or in cure, medical treatment of this complaint will avail little, unless the cutaneous capillary circulation, and the normal temperature, be maintained in the remotest extremities. Upon this surface, the causes of disease act in many instances; and from a judicious treatment of it, much aid may be derived.

None of the items of a philosophic hygiene must be neglected. If, in addition to these measures, medicines become requisite, the case must then be managed just as when strumous disease is set up, namely, by first or simultaneously restoring the secretions to a healthy state; and then, if a tonic be necessary, by giving the bitter sodaic mixture before mentioned. I have sometimes witnessed the most agreeable results from this sodaic and aperient tonic, and have found it, generally speaking, more permanently useful than any of the other tonics usually recommended. In the eccentric chorea, which is very prevalent in strumous children, it is unrivalled in efficacy; in which cases, the hydrocyanic acid is an useful addition.

No remedies will so soon effect our object of restoration of the secretions as some of the mercurials; but they will also, in addition, give us speedy, important, and effective aid, in the reduction of the various inflammatory and lymphatic engorgements, to which the strumous are so liable. I have prescribed these remedies frequently and successfully, but always watchfully.

Iodine, in some constitutions, is serviceable as a general tonic; and particularly in discussing enlarged glands. It may be given alone, or with iron, taking care to adapt it to circumstances, and to prevent the irritation of the gastro-enteric mucous membrane, which over-doses are apt to excite.

Quinine, also, enables the practitioner to vary his remedy; and I have sometimes given, with very good effect, quinine by day, and soda night and morning. The quinine acts, *at times, and for a time,* like a specific. Sarsaparilla is often very useful. I attach much importance to the exhibition of the soda; and whatever may be its mode of action, whether chemically on the blood, or as an antacid in the stomach, facts have firmly established, in my mind, its paramount value.

In the subjoined case of St. Vitus's dance, which was of long standing, and in which the spasmodic movements were exceedingly violent, the soda, with occasional purgatives, effected a cure, even a little before the intestinal evacuations had assumed a healthy appearance.

Charlotte H., Æt. 11. Feb. 28, 1838: Of strumous habit; has had the abnormal movements of chorea ever since she could walk; fell down a fortnight ago; been worse since; a pain in the right side, right arm and hand, with inability to move them; pain in the head and temples since her fall; speech affected; easier when warm; hand and side always in a sweat; appetite good; no fever; light complexion, florid face. Calomel, gr. j. nocte maneque. Empl. Canth. nuchæ.—March 8: Hydr. c. Creta, gr. ij.; Magnes. Carbon, gr. v. nocte maneque. ℞. Sodæ Carbon. ℈j.; Sodæ Sulph. ℈j.; Aquæ Menth. ℥ss.; Acid Hydroc, Med. m. j. bis die.—11: Only took three powders; mouth a little sore. Garg. Iodinæ. Mist. Amar. ℥ss.; Sodæ Carbon. ℈ss. ter die.—19: Ferri Carbon. Sodæ Carbon. āā. ʒss. bis die.—29: Pulv. Subm. Hyd. c. Jalap, gr. xij. ter in hebdomad.—April 5: Muscular motions unabated still. Pt.—8: Examined her spine; a tendency to lateral curvature; the fifth cervical vertebra (spinous process) projecting—the skin reddish over it; pain on percussing cervical and dorsal vertebræ, especially the fifth cervical. Repet. Pulv. Subm. Hyd. c. Jalap.—℞. Sodæ Carbon. ʒss. ter die, ex. aq. Empl. Canth.—14: Pain in left hand; a good deal of motion; no sleep till day-light, for the pain; nothing to be seen; the part will bear rubbing. Acetat. Morph. gr. i.; Aq. ℥ij. capt. ʒj. o. n. Soda, ut ante.—24: Less movement; stools not quite natural. Sodæ Carbon. ℈ss.; Acid Hydroc. Med. m. ij. Aq. ʒss. bis die.—May 3: She has been improving for some time, and has been able to cut her meat for some time. 10: Discharged in good health; the head and spinal symptoms gone; and the abnormal movements have not reappeared.

Crusta Lactea.—The porrigo larvalis of authors generally shows itself in scrofulous children of fair complexion and light-colored hair, &c. from about the fourth month until the completion of the first dentition. Small pustules first appear on the cheeks or forehead—they become yellow, then brown—then coalesce—and dense scabs or crusts are at length formed over the face, neck, and head, so as to completely disfigure the child—the discharge is acrid, often profuse—the neighbouring glands enlarge; after a time the crusts become drier, fall off, and the pellicle exfoliates. After obtaining a clearance of the primæ viæ, and incising the gums (if necessary), I have perseveringly given small doses of calomel, combined with magnesia or carbonate of lime. After the acute stage has passed away, an ointment of Hydr. Nitrico-oxyd. has speedily restored the surface to a healthy state. Under this plan, the most severe cases have soon yielded to treatment. I have never affected the mouth and gums.

J. S., aged 4 months: The face, forehead, and neck covered with this eruption, forming a complete mask, over cheeks and forehead; bowels confined; mother in good health, though, like her child, of strumous habit.—June 28, 1837: ℞. Chlorid. Hydr. gr. ij.; Pulv. Jal. gr. iij. nocte quotidie, chart. iv. ℞. Sodæ Carbon. ℈ss.; Sodæ Sulphat. ℈j.; Aq. ℥ss. bis die. Ung. Cetacei, q. s.—July 5: The bowels open; but little or no difference in the eruption. ℞. Chlorid. Hydr. gr. xxiv.; Cretæ, ppt. ℈ij. divide in doses 24, deter. j. nocte maneque quotidie. Six grains of Carbonate of Soda and Magnesia, each, twice a day.—July 12: A great alteration for the better.—July 19: Crusts falling off fast; skin not so red underneath as usual. July 26: Powders discontinued. Soda and Calumba ordered. Discharged, quite well.

Geo. W., aged 11 months. Nov. 1, 1836: Has got two teeth; bowels inclined to looseness; wind on stomach; eruption extends over face, ears, and nucha. ℞. Hydr. c. Cret. gr. j.; Magnes. Carbon. gr. v. nocte quotidie. Carbonates of Magnesia and Soda, with some Ol. Carui, in a mixture, thrice a day. An ointment of Ung. Zinci and Ung. Cetacei.—Nov. 14: Was clear of the eruption in one week, except in one little spot behind the ear. Pt.—Nov. 21: Has got cold; great irritation and sleepiness; no more teeth coming; wheezes much at night. ℞. Submur. Hydr. gr. j.; Cretæ, ppt. gr. iv. nocte maneque quotidie. ℞. Sodæ Carbon. ʒij.; Vin. Ipecac. ℥ss.; Aq. ℥iiss. cochl. parvum, bis vel ter quotidie. Ung. ut ante.—Dec. 5: Quite well; discharged.

These cases were treated under every disadvantage, arising from the poverty of the parents. In a chronic stage, the Ung. Hydr. Nitrico-oxyd. diluted, clears the skin more quickly than any other ointment that is usually recommended.—It would be useless to multiply cases of this disease and its treatment.

Strumous Ophthalmia, or Conjunctivitis.—Of all the diseases which infest persons of strumous habit, there is no one, perhaps, that requires more attention than this; for, if neglected, opacity of the cornea occurs, and blindness ensues. Thus the little child, as well as the mature adult, will be for ever shut out from the means of labouring for a subsistence, and also from the multitude of enjoyments that depend upon vision. Very slight causes will, in the scrofulous habit, excite high inflammation in the conjunctival membrane, the destructive progress of which will often be very rapid; still, by judicious treatment, mischief may easily be averted. The old system of leeching and blistering will totally fail, after the disease has existed a little time; and I have had to prescribe for children who have been so treated, and yet were obliged to grope their painful way through the streets, after treatment had been abandoned by those medical gentlemen who had been previously consulted.

So long as red dilated vessels were to be seen ramifying on the conjunctiva, and so long as lachrymation existed, so long was the old routine persisted in, by many persons; yet the local derangement was not benefitted—quite the contrary; while the general health suffered, and a dense opacity of the cornea was but too frequently the melancholy and ineradicable result.

In such cases, after the secretions have been looked to, the quinine often acts like a charm, and the argenti nitras, in ointment or solution, proves to be the best local application; but, besides this latter application, there is one which I have tried in very many cases, and which I feel confident will be of the utmost service, if fairly tried by the profession. I allude to the external use of the tincture of iodine, applied by means of a camel-hair brush.

I have seen it in extensive use for some years—and I trust my impressions may be received as the products of unbiassed experience, since I was not aware until lately that it had ever been publicly recommended to the profession; and since this mode of employing it is no bantling proposal of my own, having first witnessed its beneficial effects in the practice of a colleague. It was not till last year that I was first made aware of a work written by Mr. Thos. Buchanan, in which he strongly recommended this mode of using iodine. After having read that gentleman's work, I most fully concur with the author in his recommendations. Should any one be disposed to think that he has over-rated, or that *I* have exaggerated the value of this remedy, I trust that person will allow me to tell him, that he must first try the powers of the application before he condemns; and I think, if one of the Quarterly Reviewers, who noticed Mr. B.'s work soon after its publication, had only made a fair trial of the application in the way recommended, and in cases similar to those related by the author, his opinions would have been more favorable than were those in the pages alluded to; and which pages, I, a constant reader of every successive number, have hardly ever found to be otherwise than highly valuable and instructive. A reviewer is but an individual, and his opinions are but the opinions of an individual; still, destined as they often are (and as they were in this instance) to a widely extended circulation, through the means and on the wings of the mighty press, "virûm volitare per ora,"—it is of the greatest consequence that the utmost caution should be exhibited, and that (when feasible) facts should be tested by other facts, before a condemnatory bias be raised against any proposal which might otherwise have proved practically valuable, and have met with a ready and general acceptance; to the great relief of the suffering sick, and to the advancement of professional science. The stern severity of truth, and a conscientious discharge of duty, both alike demand this, from every one who is endowed with influence, either in praise or condemnation. At the same time, it must be allowed that although a reviewer is held responsible for all that appears in his publication,—yet many collaborateurs are necessary; and thus statements are published and opinions somewhat hastily offered, of which an extended experience shows the incorrectness. "Sed satis superque." And should these observations meet the eye of the above-mentioned reviewer (if he is still alive), I hope he will receive them in the same spirit in which alone they are offered, and out of which they spring, namely, an earnest desire to benefit our fellow-creatures, which doubtless is common to every right-minded practitioner of medicine.

That the tincture of iodine, either diluted or undiluted, when applied by means of a camel-hair pencil, exerts a greatly modifying power over the cutaneous capillary circulation and nerves, as also over the deeper seated cellular structure, I have not the slightest hesitation in averring. Its power in removing congestion of the capillaries is truly remarkable: many cases can be adduced in proof. It may readily be imagined that, like every other remedy, it will not agree with some idiosyncrasies, or with some persons endowed with very fine irritable skins; but this circumstance need never lead the watchful practitioner into dangerous error. In some persons, an erythema or phlyctœnoid erysipelas will arise, whenever it has been applied injudiciously, in too great strength, in too great quantity, or with too great frequency; but this erythema or erysipelas has invariably subsided, in all cases which I have witnessed, without the slightest danger to life; and as this subsidence has occurred, so has the original disease disappeared.

In very few cases indeed, will unpleasant consequences of any kind arise from this application; while it is perfectly cleanly, requires no constant attention,—and its only drawback (if drawback it can be called), is a bronze color of the skin, as if stained by walnut liquor, wherever it has been applied: but unless renewed by fresh applications, even this annoyance speedily disappears, with perhaps an exfoliated cuticle, if it have been often used. Regard must be had to the peculiarities of constitution, and to the texture of the skin,—the thinner and the more irritable the skin, the more powerfully will it act. The practised person will know how to adapt the remedy to the various states.

The first case of this kind, in which I tried this remedy, was in the instance of a gentleman who had injured his eye by a blow; considerable lachrymation and inflammation of the conjunctiva resulted, for which cold lotion was applied without benefit. It occurred to me, that I would try the iodine locally—the corresponding temple and part of the forehead were brushed over once with it: the beneficial effect was most sensible—the sandy feeling in the eye, the lachrymation and the inflammatory appearances speedily subsided; and a second application effected a cure.

By way of a passing observation, I will take this opportunity of remarking that it has not happened to me to have been consulted lately in cases of cataract—but if I were, I should certainly try the effect of this application, combined with a gentle mercurial course, and occasional blisters to the nucha, or behind the ears. From the connection of the lenticular ganglion with the par trigeminum, and from the distribution of the ciliary nerves, I should entertain hopes of benefit from such treatment, in cases of capsular or capsulo-lenticular cataracts—at all events in the incipient stages.

Mary D., Æt. 24. Nov. 29, 1837: Has been ill six weeks; the conjunctiva of the left eye is red, and much inflamed; red vessels seen ramifying everywhere; cornea much affected in its transparency, and a little in sphericity; pain in eye and head; has had advice elsewhere, from the beginning; getting worse lately, Appr. Tinct. Iodin. temporib. ac fronti, ope penicilli, bis vel ter in hebdomada. Pil. Submur. Hyd. Comp. gr. v. o. n. An aperient of Magnes. Sulphas. and Carbonas.—Dec. 2: After the first application, she said she felt as if she were going to be well all at once. Pt.—Dec. 6: Eye much better; no pain in head nor eye. Pt.—This treatment was continued three weeks longer, when the eye became as serviceable as the other, and only required a little caution against exposure to cold, and to soot, which will always excite a little local, but easily subdued irritation. She was treated under all the disadvantages of exposure and poverty, at home; and she attended to her domestic duties all the time. She is the wife of a chimney-sweeper, and is constantly exposed to irritation from soot. I advised her to wear close-fitting and protecting glasses. Her sweeping boys and all in her trade are frequently suffering from conjunctivitis.

Caroline Y., Æt. 28. Aug. 7, 1837: A married woman, of strongly marked strumous diathesis; she had just left the Ophthalmic Infirmary, at Moorfields; vision seemed to be irrecoverable in the right eye, which was in much pain, and there was only the slightest glimmering in the left—the cornea of which was opake, with spots of incipient disorganization in it; the conjunctiva very red, as also was the inner lining of the palpebræ; there was pain shooting up the temples; appetite bad; bowels regular; amenorrhœa of two months; no reason to suspect pregnancy. She was obliged to be led from the stage coach to her own house, and never could venture out alone. Appl. Tinct. Iodin. ter in hebdomadâ, more solito temporibus. ℞. Mist. Amar. ℥j.; Sodæ Carbon. ʒss.; Sodæ Sulphat. ʒss.; Sp. Ammon. Comp. m. x. ter quotidie.—The same plan was continued through August 9, 16, 30, Sept. 20 and 27, with considerable benefit; when, in spite of my repeated warnings, she caught cold; and cough, with some fever, obliged me to discontinue the plan, and order Salines with Ipecacuan and Opium.—Nov. 1: I again reverted to the old plan.—Nov. 6: She says she can see much more clearly than hitherto; but there was a circumscribed pain above the temples, for which I ordered a blister, continuing the other medicines.—Nov. 22: Pt.—Dec. 13: Improving very satisfactorily.—Jan. 24, 1838: The right eye is quite easy, and she can now see clearly with the left; she has long ago come to the Infirmary quite unattended, a considerable distance from her home; she had some more medicines, and was discharged, truly thankful for the benefit she had received; and she is now quite able to attend to her domestic duties.

These cases will be, I trust, quite sufficient to induce a trial of this novel plan; but, were it necessary, I could adduce many more cases of various degrees of severity, and at different stages of progress. In the early stages, it will altogether and speedily arrest the morbid action; and in the later periods, it will lessen greatly, if not entirely remove, opacities of the cornea which have resisted every other remedy; and in the case of Mary D. we have seen what it could effect, notwithstanding the continual local irritation kept up, by living in the midst of soot.

If this application should, after a time, seem to lose its power, then a drop, night and morning, of a weak spirituous solution of iodine, dropped into the eye, will produce very good effects; but I have not often been compelled to do this.

Scrofulous tumours, and enlarged, indurated, and inflamed glands are frequently occurring in the strumous: the swellings sometimes attain a very considerable magnitude. Sometimes, by the general treatment described in these pages, and by the iodine application, morbid action ceases in them, and they lessen in size; but if the surrounding structure participate in the disease, large tumours form, which undergo a slow and unhealthy suppuration, and after a lengthened treatment, cause much debility of constitution, and leave cicatrices most distressingly obvious to the eye.

This application will in some cases succeed in dispersing the enlarged glands—in others, it will fail; but if resorted to in time, it will generally prevent inflammatory action and the formation of pus, in the adjoining structure. I have never found it fail to do this, and a most unquestionable good it is, even if it did no more,—for, as in the case of tuberculous deposition in the lungs, we must always endeavour to confine the specific disease to its own special limits, and thus prevent the more extensive disorganization which is likely to ensue, if common inflammation or suppuration be superadded; so in these cases, we must aim at a similar object. Thus then, when tuberculous matter is deposited in a gland, this remedy will probably fail to discuss the swelling, but it will prevent deposition in the circumjacent structure. When tubercular matter is deposited under the skin, simulating an enlarged and hardened gland, it will be of use. Of course, the internal exhibition of iodine can, in these cases, be combined with the external use, whenever it is deemed desirable.

Caroline B., Æt. 6½. April 20, 1836: Of strumous habit; several enlarged glands on the right side of the neck; the tumours have lately much enlarged, and the circumjacent cellular structure is beginning to swell; there is a tendency to enlargement of the glands on the left side.—℞. Calomel, gr. ij.; Pulv. Jalap, gr. iv.; Pulv. Zinzib. gr. ss. ft. pulvis altern. noctib sumendus. ℞. Mist. Amar. ℥ss.; Solut. Hydriod. Potass. m. xij. ter quotidie. Apply Tinct. Iodin. to the parts affected, by means of a camel hair pencil, twice or thrice a week.—April 27: Pt. Some Magnes. Sulphas. with Magnes. Carbon. occasionally.—May 25: Swellings much smaller.—July 6: Discharged cured; swellings gone.

The notes of the next case have been mislaid, but it occurred in 1836. A boy, aged 13, showed me a tumour, shaped like a gland, but it was not a gland—a round hard swelling, about an inch above the middle of the clavicle; it was painful to the touch, reddish at one point, and had been increasing in size lately. This was a case of the tuberculated conglobate tumour—and those who have had to treat such cases when ulceration has occurred, can testify to the irritation and serious constitutional exhaustion which follow. He took calomel and jalap aperients occasionally—the bitter mixture with soda—and the tincture of iodine was applied three times a week. The tumour disappeared without discharging pus, in four weeks.

Henry T., Æt. 23. Sept. 13, 1837: Of strumous habit; caught cold lately, and there are two swelled glands in the right axilla—very painful to the touch; their surface inflamed, with streaks of inflammation running from them, along the course of the lymphatics; he cannot move his right arm without sharp pain—still less can he put his elbow close to his side; one swelling feels soft, and as if likely to burst and discharge the contained pus; countenance anxious; nights sleepless, from the pain. Pil. Calom. c. Coloc. j. statim, et altern. noctib. Some Magnesiæ Sulphas. and Carbonas. as an aperient. The Iodine to be applied in the usual way.—Sept. 20: Easier. Pt.—Sept. 27: Getting well.—Sept. 30: Discharged to his work, quite well, and the swellings gone.

This last case affords a good illustration of the use of iodine thus applied. Further suppuration was prevented; the pus previously formed was re-absorbed; the inflammation subdued; and the constitution at once benefitted by sound sleep at night. What would have been the result of the old mode of treatment?—a continuance of pain; an enlargement of the tumour, until the pus was discharged; and then a scrofulous ulcer, of very difficult cicatrization. Even when it will not cause an absorption of the pus already secreted, it will prevent its infiltration into the surrounding cellular membrane, and thus a large abscess or running of the pus into sinuous channels will be avoided.

Ann P., Æt. 28. April 21, 1836: Of strumous habit; has been ill some time; feels her breath confined, if her stays are drawn as tight as usual; pain about and around the left acromion scapulæ; there are cough and spitting of blood occasionally; pulse feeble, 132; dyspnæa on exertion; œdema pedum; movements of heart obscure, tumultuous, and as if fluctuating over a great extent; I thought there was dilatation of the ventricles of the heart; a large swelling on left side of spine, and under left ribs, a little lower down than the dorsal region of the heart; she did not recollect any distinct shiverings, nor any cause for the swelling. The case seemed obscure, but the phenomena were all, but with some doubt, referred to the cardiac disease—as nothing seemed to indicate a connection between the tumour and the thoracic symptoms. Pil. Coloc. c. Ext. Hyosc. gr. ij. hâc nocte. Medicam purgans, cras mane. Middle diet.—April 22: Tinct. Iodin. ope penicilli tumori, semel quotidie. ℞. Solut. Hydriodat. Potass. m. xx.; Mist. Amar. ℥j.; ex. Carbon. Ferri, ʒss. bis quotidie.—April 25: The extreme quickness of the pulse induced me to order Ext. Belladonn. gr. ij.; Aq. ℥viij. coch. largum, tertià quaque horà.—May 2: The tumour which from a soft diffused quaggy swelling had become rapidly harder and more circumscribed, since the application of the iodine, burst this morning, and the smell was so fœtid from the discharged pus and sanies, that the nurse's clothes were unbearably tainted, and the gangrenous odour was perceptible, not only in the ward in which the patient lay, but all over the corresponding wing of the Infirmary. Poultices, Quinine with Sulphuric Acid, and full diet were ordered, as the exhaustion was great; wine was added shortly afterwards, and the allowance of it gradually increased in quantity. On inspection, the cavity left was one of the largest and deepest I had ever seen; we hardly dared to probe it to the full extent; the surgeon thought it communicated with the abdomen below—and above, the lower rib was seen to go across it, the bone being quite denuded and undermined—the transverse processes of the vertebræ were visible. The chances of recovery were but trifling.—On May 7th, the Mist. Cinchon. with Ammon. Subcarb. and wine, were administered freely.—On the 15th, the dorsal cavern seemed disposed to commence filling up.—About the 26th, a little uric acid urine; required some Soda.—June 11: The Iodine was now applied all over the cavity every day. The strengthening plan was continued until August 8, when menstruation occurred.—The remedies were continued, and stimuli gradually lessened, until the 22nd September, when she was discharged, at her own request, and put on our books as an out-patient. The entire cavity had healed all over, except at one little point, leaving a discharging narrow sinus, about three quarters of an inch in depth, which was ordered to be syringed occasionally with Iodine, and pills of Sulphate of Quinine given daily. The general health had been long re-established.

In the first instance, the iodine prevented the further diffusion of the pus in the cellular membrane and brought the abscess to speedy maturation; and the rapidity with which the cavity filled up after the iodine began to be applied, was remarkable. A salutary local tone was thus imparted and maintained, which no doubt materially helped in the cure, and thus hastened the process of reparation of parts.

Tumours in the Breast, some of threatening aspect.—Sarah R., Æt. 34. April 14, 1837: Is a mother, and is suckling; came to me as an out-patient. Countenance usually fresh-colored, but strumous; there was an anxious look, and a livid eyelid. In the left breast, just above the nipple, and a little way under the skin, there was a large *very hard and lobular* tumour, not yet implicating the skin—in size it equalled an orange; it was painful to the touch at all times, but increasingly so of late; the pain darted along a chain of glandular tumours, which extended into the axilla—two of them as large as bantams' eggs; the pain darted down to the elbow, when the arm was moved; the violence of the pain prevented her from sleeping. I was fearful, from the darting pains and the lobulated hardness of the tumours, that cancer was to be apprehended. I ordered some Pil. Calomel c. Coloc. hirudin xij. and an aperient mixture.—April 17: Saline Mixture, with Magnes. Sulphas.—24 : Salines, without the Magnes. Sulphas. ; the Iodine Tincture locally ; and a night-pill of Pil. Hydr. gr. v. ; Opii, gr. j. nocte quotidie. As yet, no progress has been made ; pain not abated.—Continued this treatment through May 1, 5, 8, 17. The tumours diminishing latterly ; and the pain much lessened.—June 14 : Gums tender ; she thinks the local application has always done good ; a smarting heat first ensued, and then a subsidence of the pain. Tonic and Sodaic Mixture.—June 30 : Has caught cold ; pain recurred. Hirudin viii. Mist. Citratis Sodæ, ℥j. ; Sodæ Carbon. ʒss. ; Sp. Ammon. C. m. x. ter quotidie. The Pil. Hydr. c. Opio to be resumed. The Iodine, as before.—Aug. 2 : The mouth had been tender, and the pills discontinued a fortnight ago, but she has continued to take the Mixture and to apply the Tincture ; the mouth now well ; the tumours under the axilla hardly to be felt at all—the one above the nipple quite soft and much smaller. Repet. Mist. et Applicat. ℞. Hydr. c. Creta ; Pulv. Ipecac. C. āā. gr. iij. o. n.—Sept. 23 : Pt.—Oct. 14 : No pains ; no swellings ; feels well. Discharged.

My notes say this was a most interesting case, as cancer seemed to have been threatened. The iodine exerted an influence truly surprising. It may, perhaps, be alleged that the general treatment was the sole source of benefit,—but I do not think so ; and the woman herself was so well aware of the value of the iodine, that she never suffered herself to be a day without it.

Sarah W., Æt. 67. March 7, 1838 : Of dark complexion ; anorexia and sleeplessness from pain ; bowels rather too freely open; urine rather high colored; one large very hard lump above the right nipple; one hard tumour, feeling like an enlarged gland, above the left nipple; severe pain in this last, which pain is of a darting, shooting kind, she says. Tinct. Iodin. one part; Sp. Vin. Rect. three parts, to be applied every alternate day to the part affected. Pil. Submur. Hydr. C. nocte quotidie. Mist. Amar. with Sodæ, ʒss. bis die.—March 14: Continue.—April 4: The large and very hard tumour on the right breast quite gone; the left no longer painful, and much smaller. She seemed much impressed with the quick action of the application, and the speedy discussion of the tumours.

Sometimes there is a great deal of difficulty in reducing the fullness, and resolving the induration of the breasts, after weaning—and particularly after sudden weaning. In such cases, the local application of a weak tincture of iodine, every night or morning, will, together with the usual general treatment, be the very best discutient to which we can resort. Even when the mammæ have inflamed, and suppuration has taken place, it will, when properly adapted to circumstances, prove of very great assistance, and prevent the successive formations of abscess, which are so apt to occur in these states, and which formations of matter very much exhaust the patient, by the pain, discharge, and sleepless nights, which they occasion.

Inflamed Mamma and Milk Abscess.—Emma R., Æt. 27. October 24, 1837: Is suckling a child three months old; countenance strumous; features drawn in; rest disturbed; has been ill five weeks; the breast getting worse, and the health lowered. A large abscess has been formed in the right breast, and discharged; there is much inflammation around, and induration; very painful to the touch; and pointing in two soft red places. Cataplasma Farin. Sem. Lini. Mist. Salina c. Magn. Sulph. ℞. Pil. Hydr. gr. iij.; Ext. Hyosc. gr. ij. nocte quotidie.—Oct. 7: Pt.—11: Apply the Tinct. Iodin. in the usual way.—14: Pain is a little lessened, she thinks. Mist. Amar. with Soda, the Carbonat. and Sulphat, and a few drops of Salvolatile.—Nov. 8: Much better; induration and swelling much diminished.—Nov. 22: Quite well in health; has suckled throughout the treatment; swelling gone.

Amy C., Æt. 21. Aug. 23, 1837: Hair light-colored; eyes light, and complexion scrofulous; face very thin and pale; is suckling a child nearly three months old. Her left breast has been enlarged and inflamed ever since her accouchement, and she has ever since been under treatment by her accoucheur; successive suppurations have taken place, leaving a great induration of the breast. The right mamma is very much enlarged; red at one point; very painful—the pain darting into axilla and down the arm; she cannot sleep at night, and is feverish; bowels confined; has a cough. The baby has an unhealthy look, and its motions are griping and unhealthy looking. Hirudin viij. mammæ. ℞. Pil. Hydrarg, gr. v.; Opii, gr. ss. ter die. ℞. Sodæ Carbon. et Sulphat aa. ʒss.; Tinct. Jalap, ʒss.; Sp. Ammon. C. m. xij.; Aq. ℥j. nocte maneque. Appl. Tinct. Iodin. more solito.—Aug. 28: Pil. Hydr. gr. iij.; Opii. gr. j. nocte maneque. Tinct. Iodin. ut ante. Some Magnes. Sulphas. and Carbonas. The pain is relieved, and the breast is smaller, but it is still hard, and occasionally painful.—Aug. 30 : Poultice the red, soft point. The Iodine to be applied to the other parts.—Sept. 6 : The red point still softer, but the swelling is much smaller.—Sept. 13 : The breast has discharged—it is now of normal dimensions ; her health is much improved.—Sept. 20 : Pil. Quinin. Sulph. j. ter die. Tinct. Iodin. ut ante.—Sept. 27 : Discharged this day, quite well. My remarks put down at the time of her discharge are these—this was a bad case of its kind ; the swelling was very large and painful ; the constitution much worn down by the continuance of her disease, and her suckling ; she had no means to procure sufficient nutriment at home. The iodine was very successful ; and saved, by its local influence, much effort to the constitution — even allowing for the full benefit of the general treatment.

Hypertrophic Induration of the Calf of the Right Leg. This was a case in which the benefit derived could be ascribed to the Tinct. Iodin. alone. There was a solid hard swelling following the outline, and taking the form of the gastrocnemius ; it was but slightly painful to the touch, but it was so large and stiff as to prevent the use of the limb. The applicant was a young, athletic, and usually healthy man, about 20 years of age ; his general health was not out of order ; and he did not know to what to refer the swelling.—March 6, 1836 : A Colocynth Pill twice a week ; and a Mixture of Magnes. Carbon. and Sulphas. with some Vin. Colchic, mane quotidie, vel alternis diebus. The Iodine to be applied in the usual way every alternate night. This application agreed well, from the first, and the whole treatment was never altered. The swelling decreased, at first gradually, then quickly and sensibly, until March 30, when he was discharged, quite well—the leg being reduced to its proper size.

Housemaid's Knee, or Inflamed Bursamucosa.—Eliza H., Æt. 22. Sept. 6, 1837 : Showed me an enlarged, tender, and inflamed bursa mucosa, under the ligm. patellæ; the swelling was not much advanced beyond its first stage, but it was likely to give trouble; some pain at night; constitutional disturbance but trifling at present. Pil. Submur. Hydr. Comp. gr. v. nocte quotidie. Mist. Amar. with Sodæ Carbonas. and Sulphas. and some Sp. Ammon. C. Tinct. Iodin. p. aff. ter in hebdomadâ.—Sept. 20: Discharged, quite well.

I have seen some very serious and obstinate cases of this disease treated thus, very successfully.

Extensive Inflammation of Arm.—Elizabeth S., Æt. 54. Nov. 16, 1836: Has injured her right arm; it was very red and much swollen from fingers to elbow, exceedingly painful; she has had rigors; and a collection of pus under the fascia was to be expected; her nights sleepless from pain; pyrexial symptoms. Tinct. Iodin. p. aff. altern. diebus. An aperient mixture, with Tinct. Hyosc. bis die, and a Calomel and Colocynth Pill, horâ somni et bis in hebdomadâ.—Dec. 7: The pain was eased very soon after the application, which occasioned a little smarting; the inflammation and swelling are quite gone.

Case of Wound (Poisoned).—James S. June 9, 1837: Says he was employed at a brick-kiln; and on the previous Saturday, whilst taking his turn of sleep, he was bitten by a slow-worm, which was afterwards killed very near the spot; the part bitten was the second phalanx of the right indicator finger; the pain was very great; the inflammation and swelling extended up to the elbow; the man felt very faint and shivering—could not sleep—and there was considerable constitutional disturbance; has been getting worse ever since he was bitten. An opening was made in the swelling at three different points, near the thumb, finger, and wrist. Tinct. Iodin. part aff. ter in hebdomada. A Calomel and Colocynth Pill, and an Aperient Mixture.—On July 12, he was discharged, cured.

Is the bite of a slow-worm poisonous? Naturalists say it is not; but the notion that it is, is very prevalent in Hertfordshire.

This application has been of service in incipient mortification, and it has arrested, in several instances, the progress of disorganization at more advanced periods—keeping up a local tone, if I may so express myself; thus giving time for tonics, &c. to act upon the constitution, and preventing the depressing influence of a spreading mass of slough and mortification. In severe injuries, ecchymoses and swellings, which under the old treatment would require attention for weeks, before they could be removed, and which in spite of all that could be done, were often attended by alarming constitutional disorder, and followed by sloughings, the iodine brush will act on the local disease most beneficially; and thus help very materially to remove, or at all events to reduce within safe limits, the pyrexia, symptomatic of such affections.

I recollect a case of severe traumatic erysipelas occurring in a boy, who while at plough, was knocked down by the runaway horses, and while on the ground the ploughshare ran into his scalp over the right parietal bone, causing a considerable wound down to the bone. Severe erysipelas manifested itself in three days; the tincture of iodine was applied to the shaven head and over and down the neck, pretty nearly to the clavicles, whithersoever the swelling had extended. It seemed to prevent all anticipated mischief, and in all probability saved the boy's life.

In whitlow, this application will do much good. In the first and second stages of paronychia, it is an energetic discutient, and it will give relief, even in the deeper-seated kinds. It has been of much use to me, in my treatment of several cases of rheumatism, both synovial and fibrous.

It may now perhaps, be unnecessary to detail any more cases; and I think I may fairly say of this mode of using iodine, in the words of its introducer, "that it has produced resolution in the acute stage of inflammation, and absorption of matter in the chronic or more advanced stage." I will add, not merely without causing injury to the system, but at the same time affording benefit, by sparing those vital powers which are so easily laid prostrate, in persons of a strumous habit.

The influence of iodine is very great, when applied locally to the mucous membrane. In illustration, the following cases are appended:—

Mrs. C. came under my treatment in June, 1836; and another medical gentleman had hitherto prescribed for her the Pil. Cathart. and Ung. Hydrarg. Fort. without effect. Her constitution was strumous; she could not open her mouth half an inch wide, in consequence of a very hard swelling on the right cheek and jaw; the limits were not abruptly defined; it had been increasing in size lately; there were shooting pains, and she began to suffer in constitution. I feared a malignant tendency, or else that a rapid and unmanageable growth would ensue.—On June 29, the following gargle was prescribed: ℞. Solut. Hydriod. Iodur. Potass. ℥iss.; Mellis, ℥j.; Ext. Opii, ʒss.; Aq. Distil. ℥x. ft. gargar. sæpe utend. ℞. Sodæ Carbonat. ʒj. bis die.—July 6: Some costiveness. An aperient.—July 22: Pt. Ung. Iodin externé.—Aug. 3: Add. ʒss. Solut. Potass. Hydriod. Iodur. gargar.—Sept. 3: The swelling had been lately diminishing in size, and she can now open her mouth as widely as usual. She was discharged, quite well.

Eliza H., Æt. 19. Aug. 16, 1837: Florid face; habit strumous; about a year ago she had a stiff neck (from rheumatism?) Her speech became affected; now her voice is nearly inaudible; there is almost complete aphonia; there are also pain in the throat, and difficult deglutition; no cough; menstruation scanty, and she is worse at those periods; flushed face, if she exerts herself; has consulted many medical men in town and country. ℞. Pil. Submur. Hydr. C. gr. v. nocte quotidie, No. xiv. Saline Medecine with Magnes. Sulphas. Ung. Hydriod. Potas. ʒss. cervic nocte infric.—Aug. 23: Pil. Aloet, gr. iv.; Pil. Hydrarg. gr. j. nocte maneque. ℞. Solut. Ioduret. Hydriodat. Potass. ℥j.; Mellis, ℥j.; Aq. ℥xiv. ft. gargarism. Empl. Canthar. laryngi externé.—Aug. 30: Deglutition improved lately; a short cough; she spat up blood yesterday; pulse 80, but small. ℞. Chlorid. Hydr. gr. j.; Pil. Sapon. C. gr. iiss. ft pil. nocte maneque quotidie sum. No. xij. ℞. Mist. Amar. ℥j.; Sodæ Carbon. ʒss.; Sodæ Sulphat. ℈ij.; Sp. Ammon. C. m. x. bis die.—Sept. 6: Empl. Canthar. p. aff. Perstet.—Sept. 13: Has been gradually getting better — lately rapidly so; she has now quite recovered her voice, and can read out loudly; menstruation is improved, and she feels quite well. Discharged.

Eliz. S., Æt. 29. Sept. 20, 1837: There was a broad ulcer in a nasty sloughing state, making a large hole at the root of the uvula and circumjacent velum palati; there was a deep burrowing ulcer on the left tonsil; a crustaceous eruption on the forehead; her health has lately suffered much; her drinks, &c. come out through the nostrils, and deglutition is difficult. Neither she nor her husband, she assures me, ever had any venereal disorder; and they are of respectable character. ℞. Submur. Hydr. Comp. j. nocte maneque. ℞. Solu tHydriod. Iodur. Potass. ℥ss.; Mellis, ℥ss.; Aq. ℥xiv. ft. gargar. sæpe. utm. A mixture of Sodæ Carbonas. and Sulphas. with some Ginger, twice a day.—27: The gargle causes, at first, a little smarting—then she feels more comfortable; looks better. Repet. Gargar.. Mist. Amar. with Sodæ Carbonas. ter die. Pil. Hydr. gr. v. nocte maneque.—Oct. 4: Throat healing. Pil. Hydrarg. gr. iv.: Ext. Rhæi. gr. ij. o. n. Gargar. et Mist. ut ante.—Oct. 11: The ulcers nearly clean, and contracting in dimensions; can now drink without the fluid passing out through the nostrils.—Oct. 25: The velum nearly healed up; the uvula saved; the tonsil sound.—Continued this treatment until Dec. 3, when she was discharged, quite well.

The iodine was a most important auxiliary in preventing further destruction of parts.

Sarah N., Æt. 48. Aug. 3, 1836: Tonsils swelled—dark red; a deeply burrowing ulceration, extending from the tonsils up to the velum; deglutition difficult; costiveness; this was syphilitic; been ill a long time; worse lately. ℞. Solut. Hydriod. Iodur. Potass. ℥ss.; Aq. ℥vii. pro gargar. Pil. Coloc. c. Al. j. statim et alt. noctib. A Mixture of Magnesia and Epsom Salts.—Aug. 10: Pil. Submur. Hydr. C. gr. iv. nocte maneque. Garg. et Mist. ut ante.—17: ℞. Pil. Hydr. ʒj.; Pil. Sapon. c. Opio, ℈j. ft. pil. 16, capt. j. nocte maneque quotidie. Gargar. et Mist. —This plan was continued without variation until Nov. 2, when she was discharged, quite well.

The size of the ulcer, the duration of the disease, and consequent saturation of the system with the virus, caused the protracted treatment; while the rapid spreading of the ulceration seemed to threaten lamentable consequences, and to demand energetic means to stop it.

In some obstinate leucorrhœas, injections of the solution of the ioduretted hydriodate of potass have communicated a stimulus, and excited a healthy action in the mucous membrane, after other injections had failed. The first effect is an increase of the discharge; but it soon becomes of an altered quality, and then diminishes in quantity. The use of this remedy, in this disease, requires much watchful attention, lest unhealthy local excitement of the vagina and cervix uteri be induced. Such an injection should not be thrown in oftener than twice a week; and sometimes an addition of the watery extract of opium, or a little addition of the extract of belladonna, might be serviceable.

CONCLUSION.

The writer will now conclude this attempt in practical medicine at sketching out "the ever honored mean" between fierce depletion, with its corresponding exhausting remedies on the one hand, and the inertness of the "medicine expectante" on the other; and he feels confident that a scrupulous observance of this cardinal precept in practice—namely, to exhaust the vital powers always as little as may be possible, consistently with circumstances, and with complete efficiency of treatment—will enable the practitioner to save many a life from the mortal grasp of disease.

With respect to diet and regimen, certain rules have here been laid down; and it will be seen that temperance is one of the most important. The scholar may satisfy himself that all authors on dietetics, from the most ancient down to the most modern, have warned mankind against the universal tendency to eat and drink more than the human animal economy really wants. "Una gula, morborum mater." So too, the writer of these pages has deemed it his duty to recommend temperance in eating or in drinking, particularly as to the former, (for temperance societies are *exclusively* employed in suppressing the latter); yet he has not wished to propose any ascetic doctrines. On the contrary, he fully concurs with Mr. Foster, who at page 194 of his work on Epidemia, writes as follows:—"Temperance, modified according to the climate and the habits of the people, is everywhere the tenure on which man holds his health. Temperance allows a vast variety of foods, provided they be eaten in moderation, and the health which follows, refuses no habitable situation on the globe. The flock of hygeia is widely dispersed over the earth's surface; and fortified by the observance of her rules, we may traverse the frozen mountains of polar ice, or bask in the warm valleys which lie along the sun's path: we may brave vicissitudes of heat and cold, and cross and re-cross the equator from arctic to antarctic snows, or ramble along an isothermal line, as necessity or choice may direct."

Finally, the invalid may rest assured that if he will obey the rules and directions of a philosophic hygiene, he shall often prevent the invasion of disease, and thus multiply his chances of attaining a lengthened enjoyment of the pleasures of existence,—he shall haply enjoy even a Ciceronian old age, until, after having avoided premature decrepitude, he shall drop from mere ripeness and sufficiency of life—exacto contentus tempore—and exemplify the memorable ethical axiom of Aristotle,

έκ τοῦ βὶου, κρὰτιστον εστιν εξελθεῖν,
ως ὲκ συμποσὶου, μητε διψουντα μητε μεθὺοντα.

THE END.

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